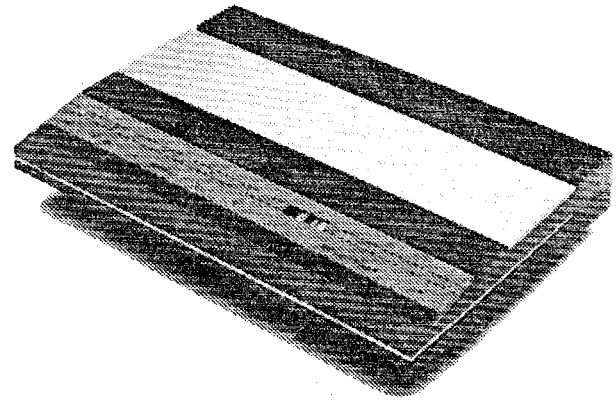
Bang&Olufsen

Corrections included

Beogram CDX 2

Type 5161, 5162, 5164

V11997



BEOGRAM CD 3300

Type 5141, 5142, 5143
5144, 5145

SERVICEANVISNING
SERVICE MANUAL

INDHOLD

Moduloversigt 1
Tekniske specifikationer 1
Diagrammer 2
Elektrisk stykliste 3
Mekanisk stykliste 4
Kontrol, reparation og justeringer 5
Adskillelse 6
Servicetips 7
Isolationstest 8

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Technical specifications 1
Circuit diagrams 2
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Mechanical parts list 4
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Service tips 7
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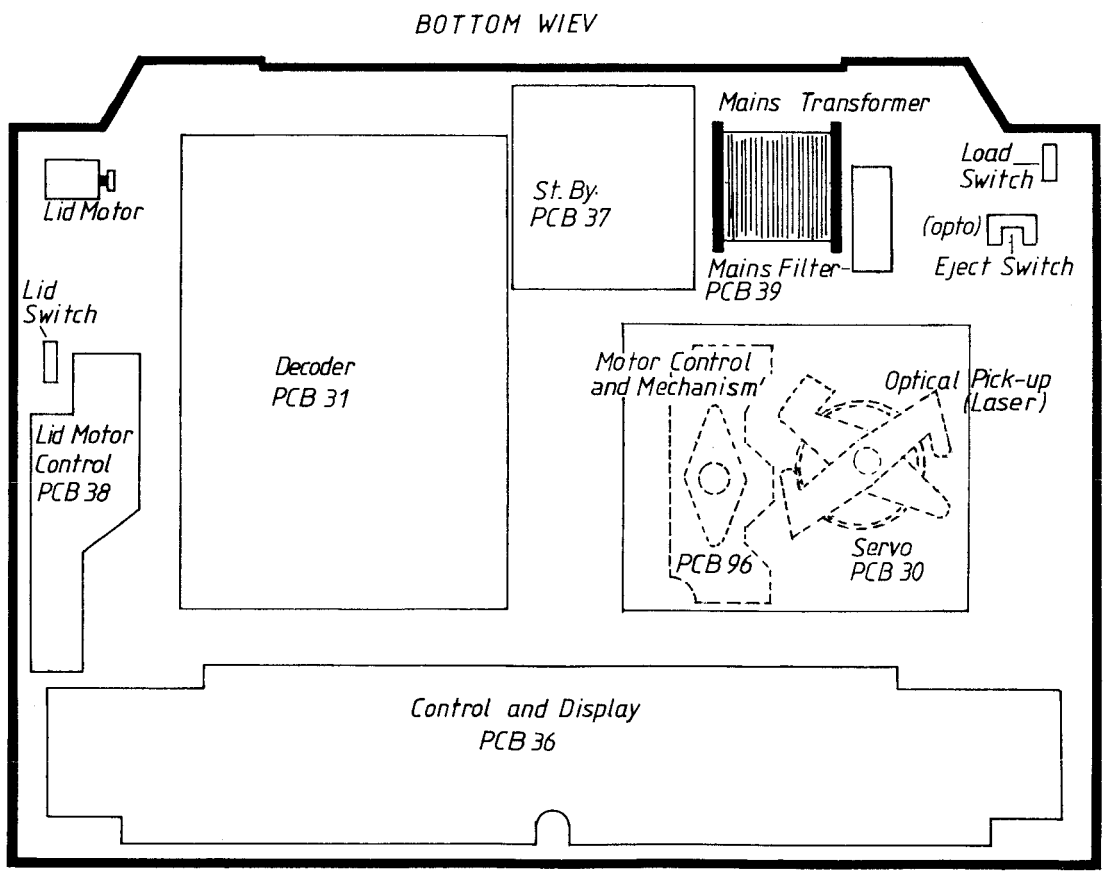
Modules

30	Servo	diagr. A
31	Decoder	diagr. B
36	Control and Display	diagr. C
37	Stand by	diagr. D
38	Lid motor control	diagr. D
39	Mains filter	diagr. D
96	Disc Motor Control and Mechanism	diagr. A
	Eject switch	diagr. D

CLASS 1
LASER PRODUCT



TECHNICAL SPECIFICATIONS

Frequency range	3-20,000 Hz ±0.3 dB
Signal-to-noise ratio	>96 dB/100 dB A-weighted
Dynamic range	>96 dB
Harmonic distortion	<0.003% at 0 dB
	<0.03% at -20 dB
Channel separation	>94 dB
Channel difference	<0.5 dB
Converter system	16 bit, 4 x oversampling 176.4 kHz
Low pass filter	Digital + bessel analog
Damping >20,000 Hz	>50 dB
Phase error	±0.5 degree at 20-20,000 Hz
Output	2 V RMS at 0 dB
Power supply	Type no. 5141: 220 V
	Type no. 5142: 240 V
	Type no. 5143: 120 V
	Type no. 5144: 100 V
	Type no. 5145: 240 V
Power frequency	50-60 Hz
Power consumption	30 watts
Dimensions W x H x D	42 x 7.5 x 31 cm (16½" x 3 x 12¼")
Weight	4.9 kg (10.8 lbs)

Subject to change without notice

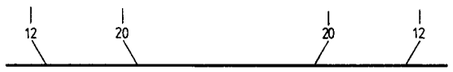
DIAGRAMFORKLARING

På diagrammet er der angivet typenumre på transistorer og IC'er i de tilfælde hvor typenummeret er entydigt for komponentens placering i kredsløbet – f.eks. TR20/BC 557B

Hvis positionsnummeret er efterfulgt af en stjerne **skal** reservedelsnummeret benyttes, da denne komponent er specielt udvalgt – f.eks. TR102*.

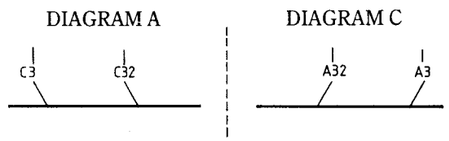
Ledningsforbindelser
Ledningsforbindelserne på diagrammet er samlet i »bundter«. De enkelte ledninger er forsynet med koder, der fortæller hvortil de går.

INTERN FORBINDELSE
PÅ EN DIAGRAMSIDE



Interne forbindelser på en diagramside angives med et tal. Knækket på ledningen viser i hvilken retning den anden ende af ledningen findes.

FORBINDELSE TIL EN ANDEN
DIAGRAMSIDE



Forbindelsen til en anden diagramside angives med et tal, samt bogstav indikation på det diagram forbindelsen går til.

Forsyningsspændinger
En pil og spændingen viser, hvor forsyningsspændingerne går ind i et print.

Eksempel: Ved siden af forsyningsspændingen står f.eks. 7 CON. Det betyder at denne pil, og dermed forsyning går til 7 steder på denne diagramside (7 CON. = 7 connections).

Symbol for sikkerhedskomponenter

Ved udskiftning af komponenter med dette symbol skal der anvendes komponenter med samme reservedelsnummer. Den nye komponent skal monteres på samme måde som den udskiftede.

EXPLANATION OF DIAGRAM

Type numbers of transistors and IC's have been indicated on the diagram in those cases where the type number is unambiguous for the position of the component in a circuitry – e.g. TR20/BC 557B.

If the position number is followed by an asterisk the spare part number **must be used** because this component has been expecially selected – e.g. TR102*.

Wiring Connections
The wiring connections on the diagram are assembled in "bundles". The individual wires are coded to indicate to where they are leading.

INTERNAL CONNECTION
ON ONE DIAGRAM PAGE

Internal connections on a diagram page are indicated by a number. The bend of the wire indicates in which direction the other end of the wire may be found.

CONNECTION TO ANOTHER
DIAGRAM PAGE

Connections to another diagram page are indicated by a number, as well as by a letter of the diagram to which the connections lead.

Supply Voltage
An arrow and the voltage show where the supply voltages are fed to a PCB.

Example: Next to the supply voltage it says e.g. 7 CON. This means that this arrow, and thus the supply goes to 7 different places on this diagram pages (7 CON. = 7 connections).

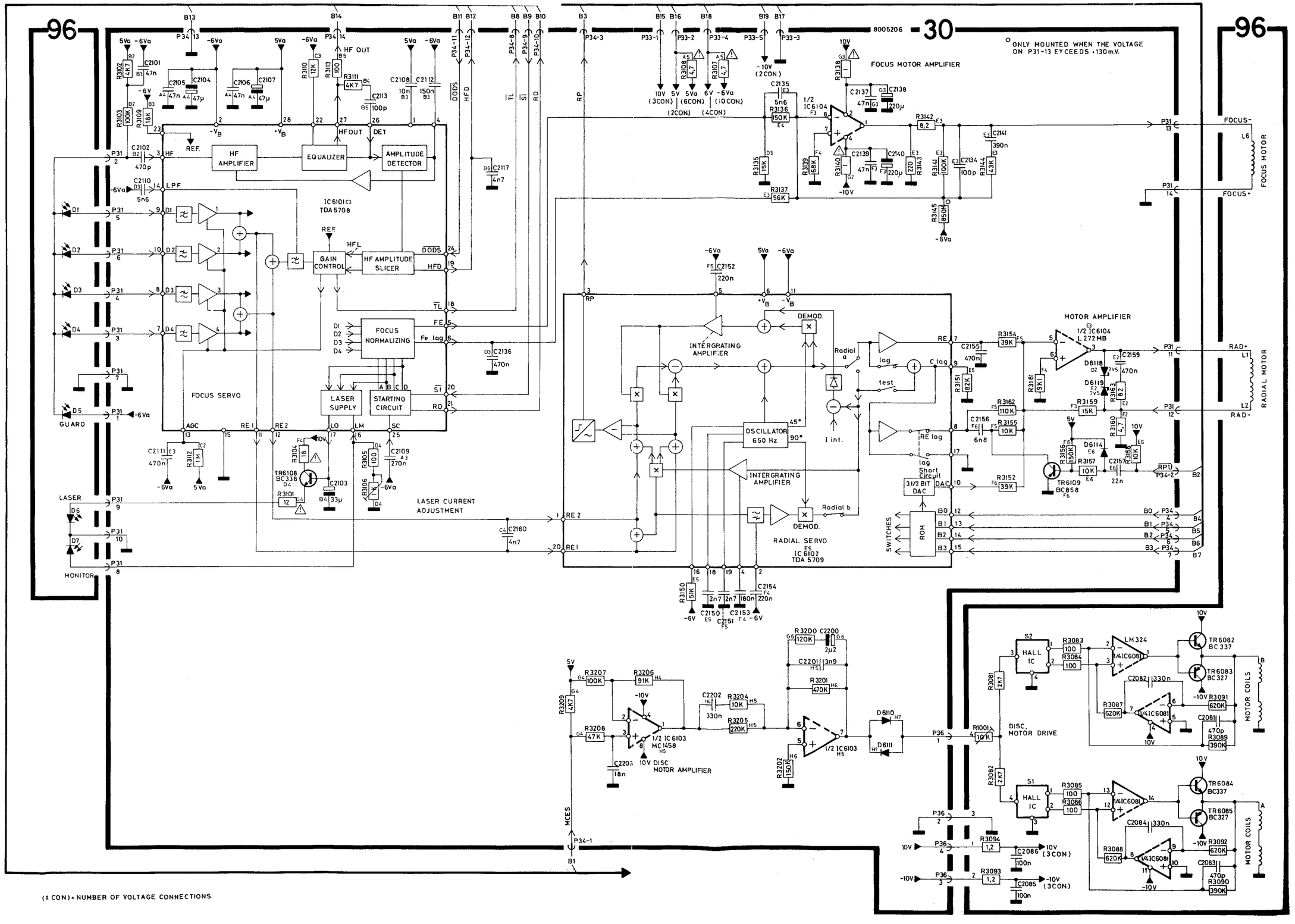
Symbol for Safety Components

When replacing components with this symbol components with identical part numbers are to be used. The new component must be fitted in the same way as the one replaced.

2-1 2-1

For Servo PCB with Focus off-set Adjustment

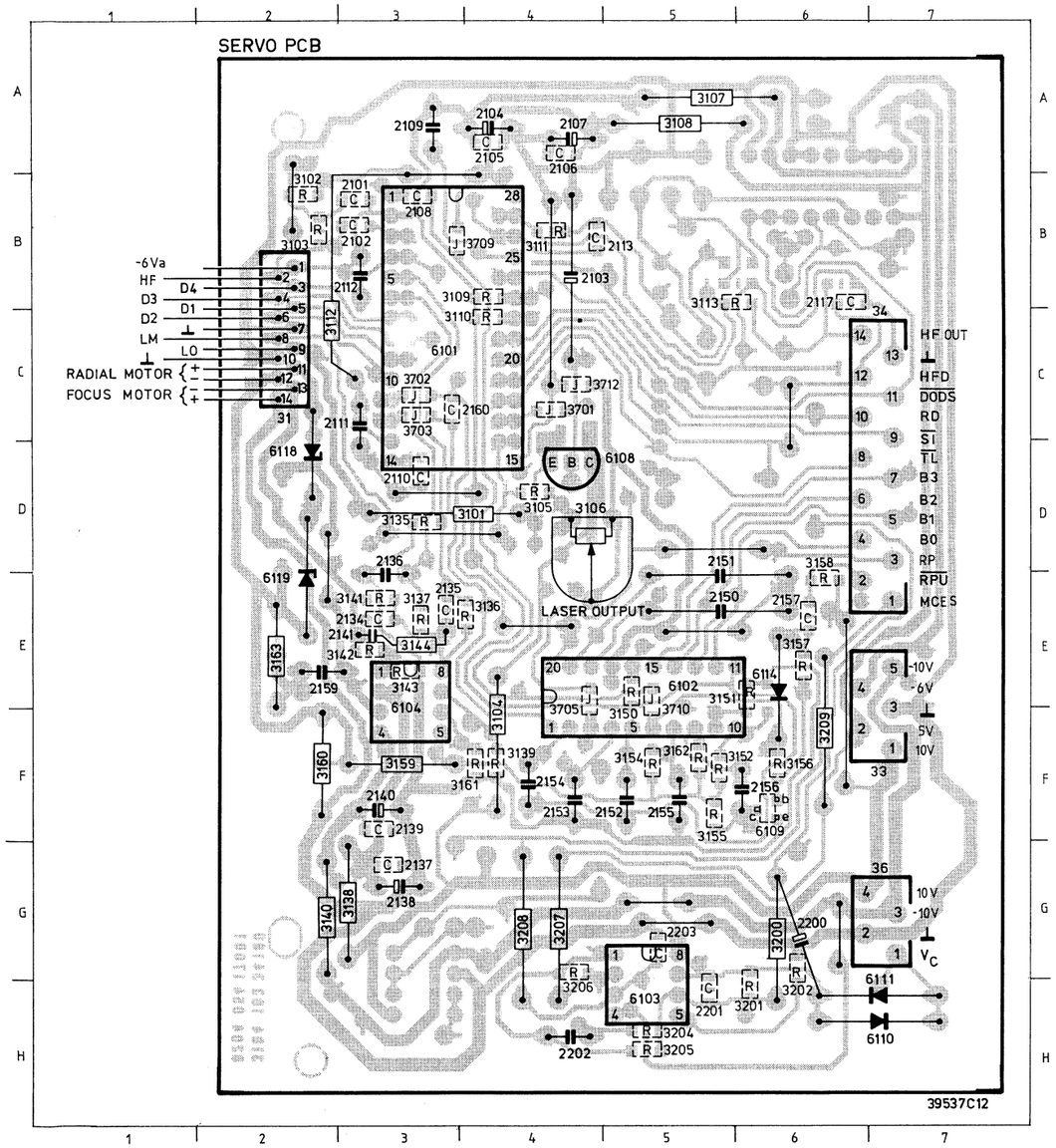
DIAGRAM A (Servo and Disc Motor System) see page 9-1.



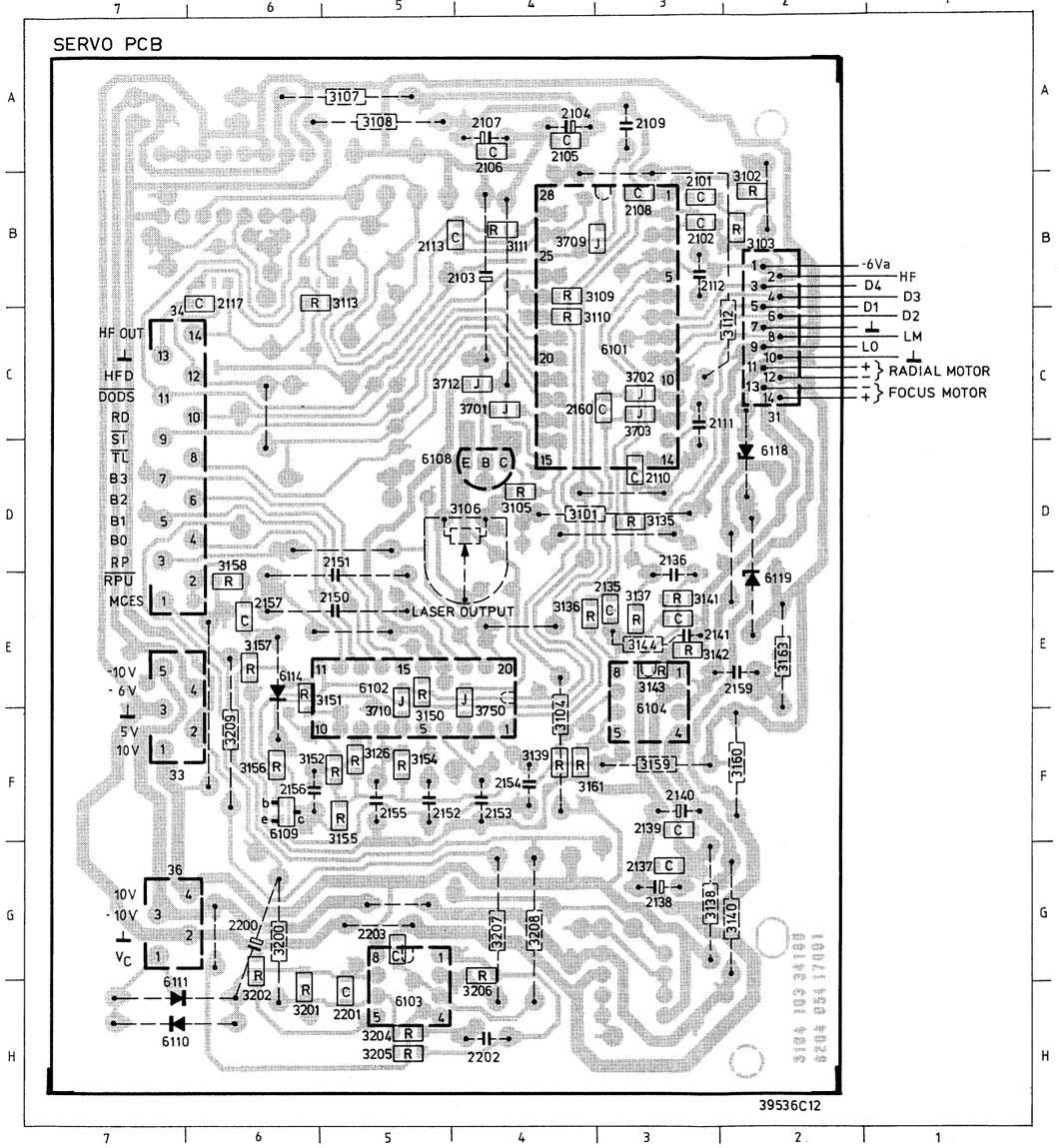
2-3

2-3

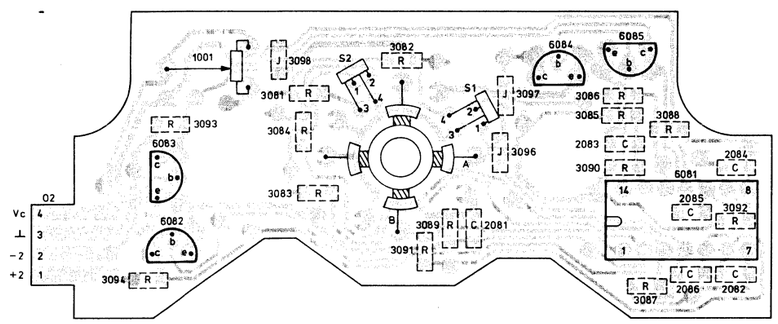
SERVO PCB 30

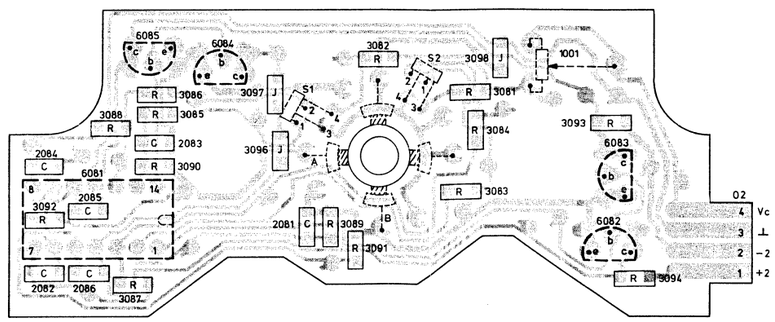


SERVO PCB 30



DISC MOTOR CONTROL

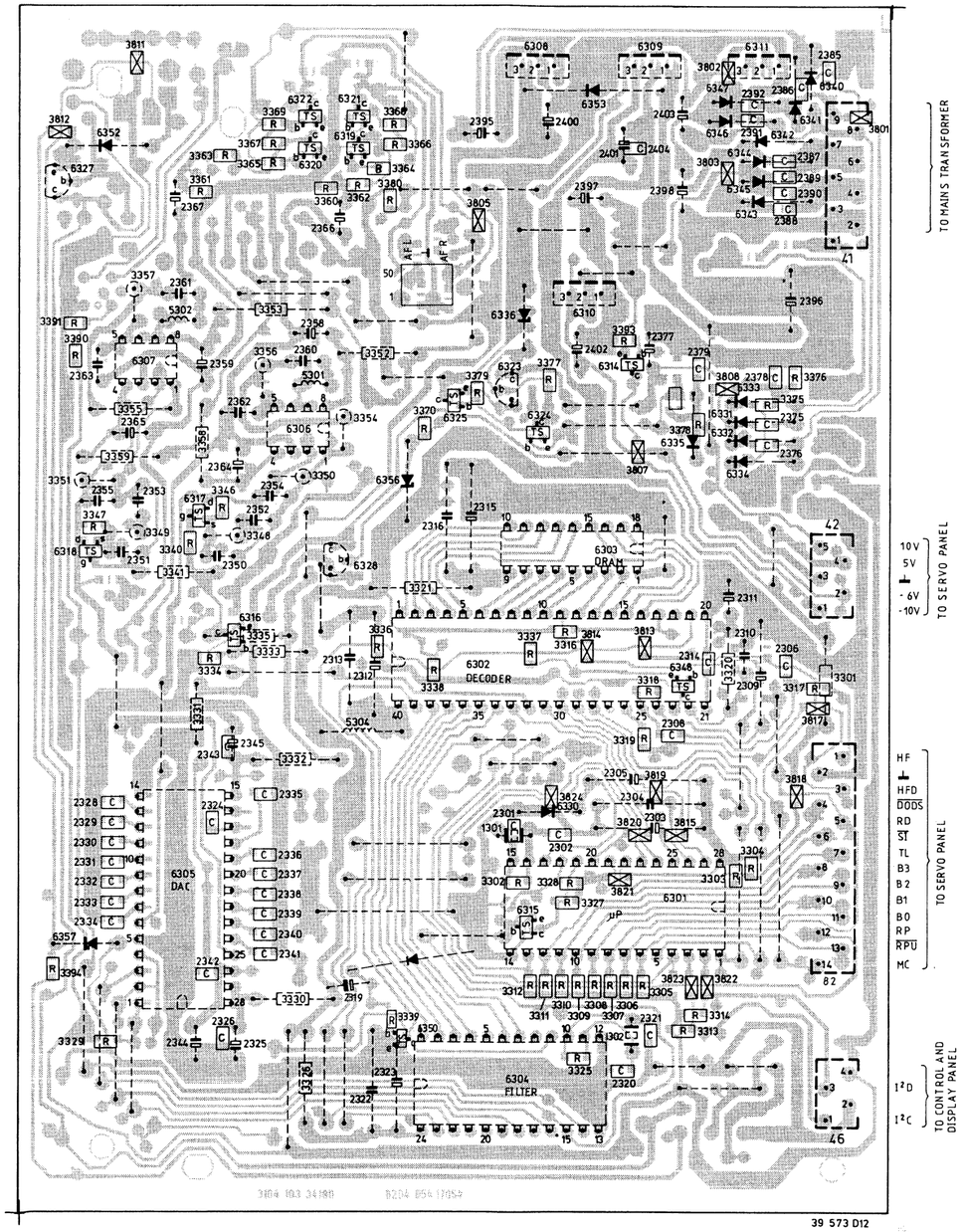




2-4

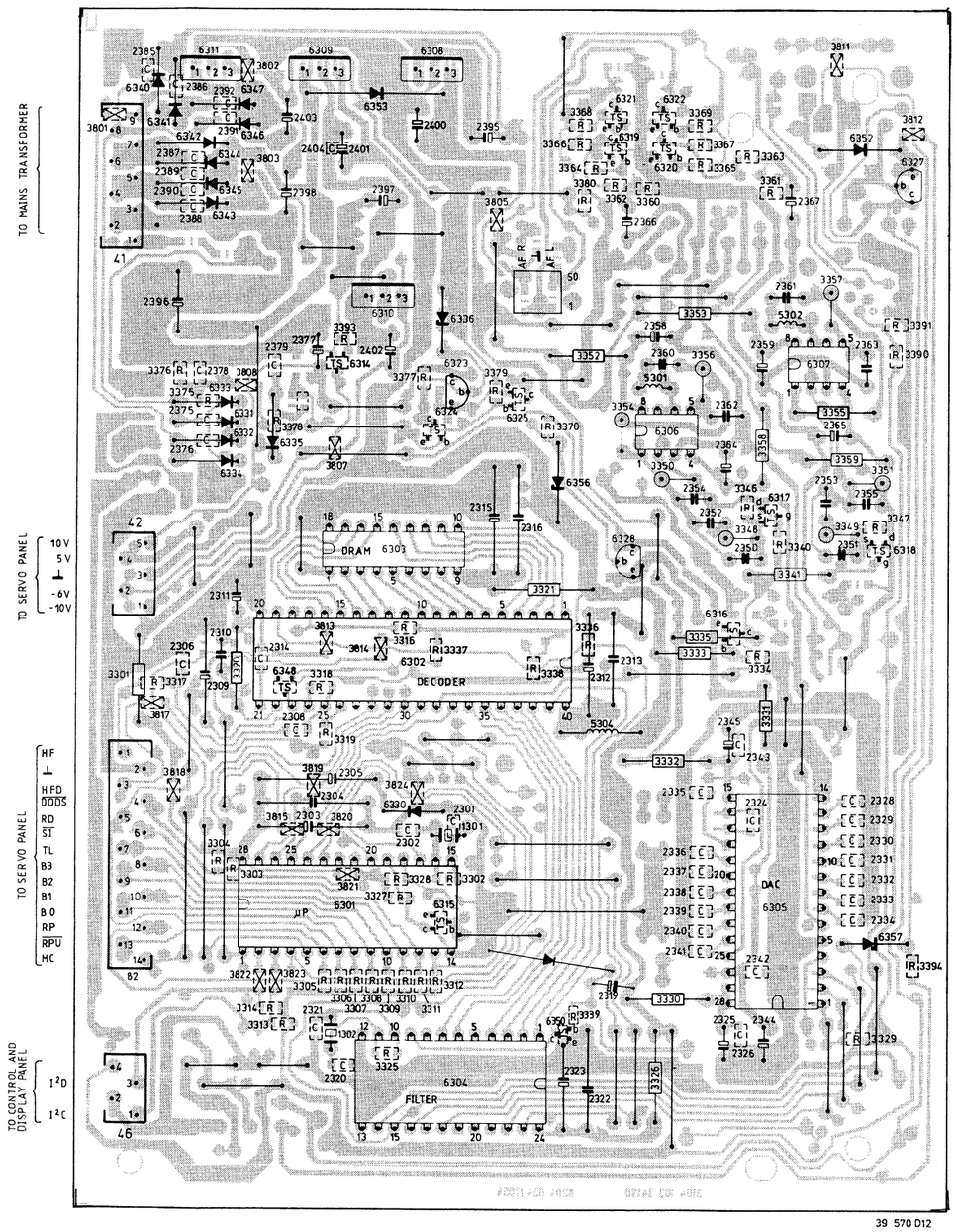
2-4

DECODER PCB 31



39 573 D12

DECODER PCB 31



39 570 D12

DIAGRAM B (Decoder)

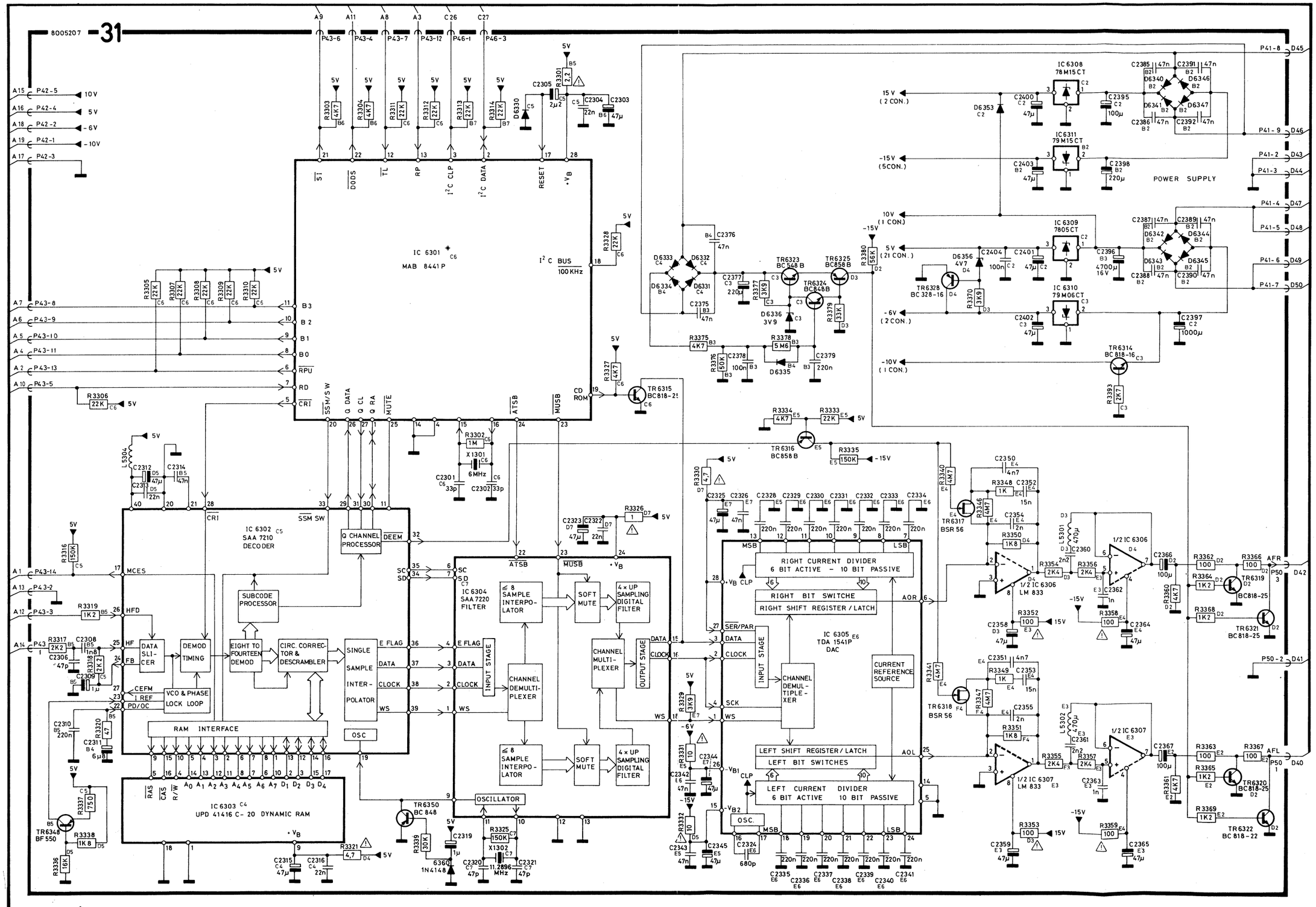
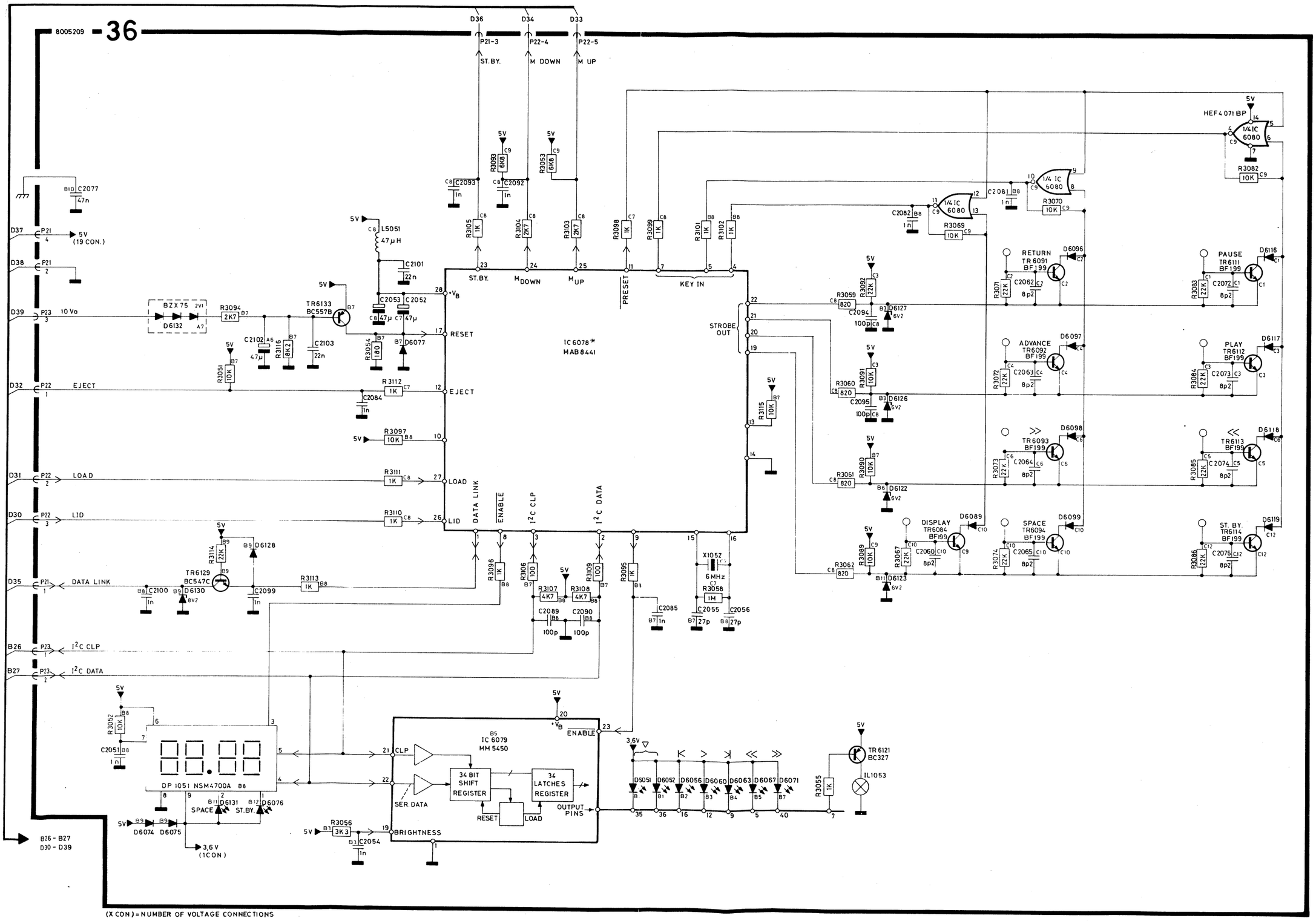
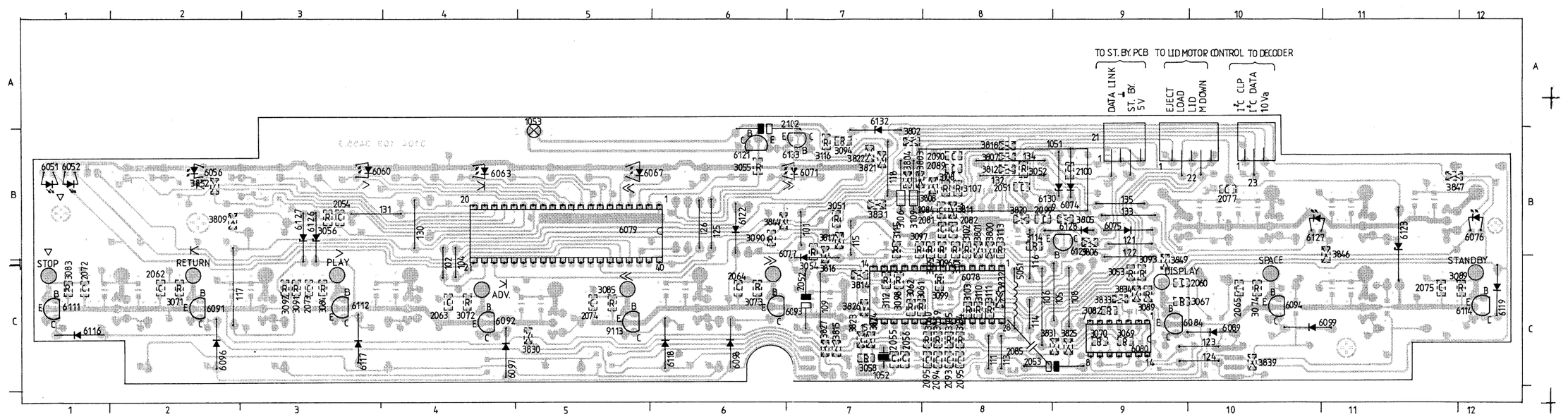


DIAGRAM C (Control and Display)



CONTROL AND DISPLAY



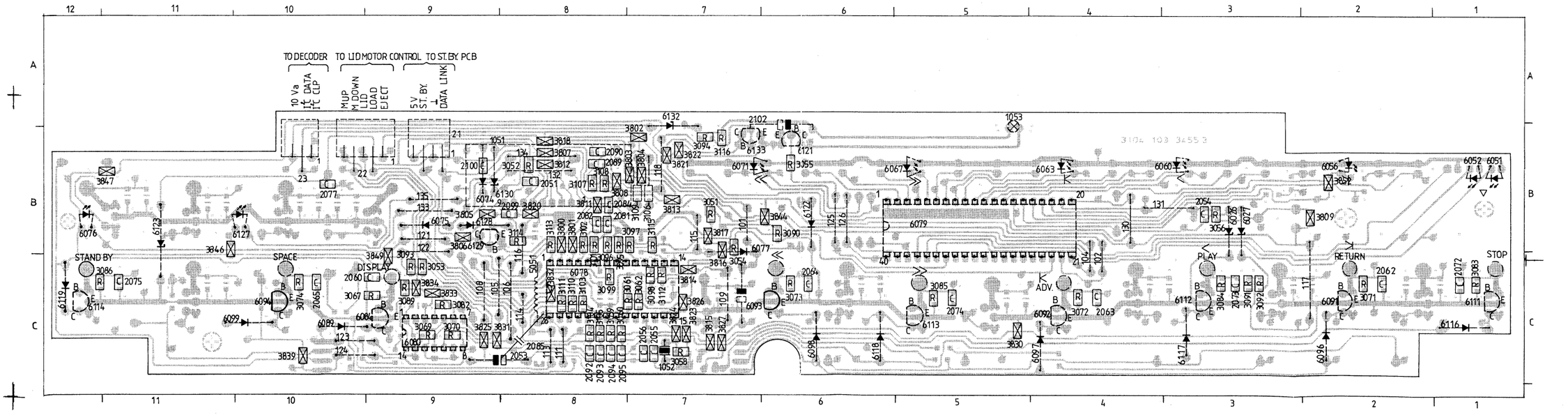
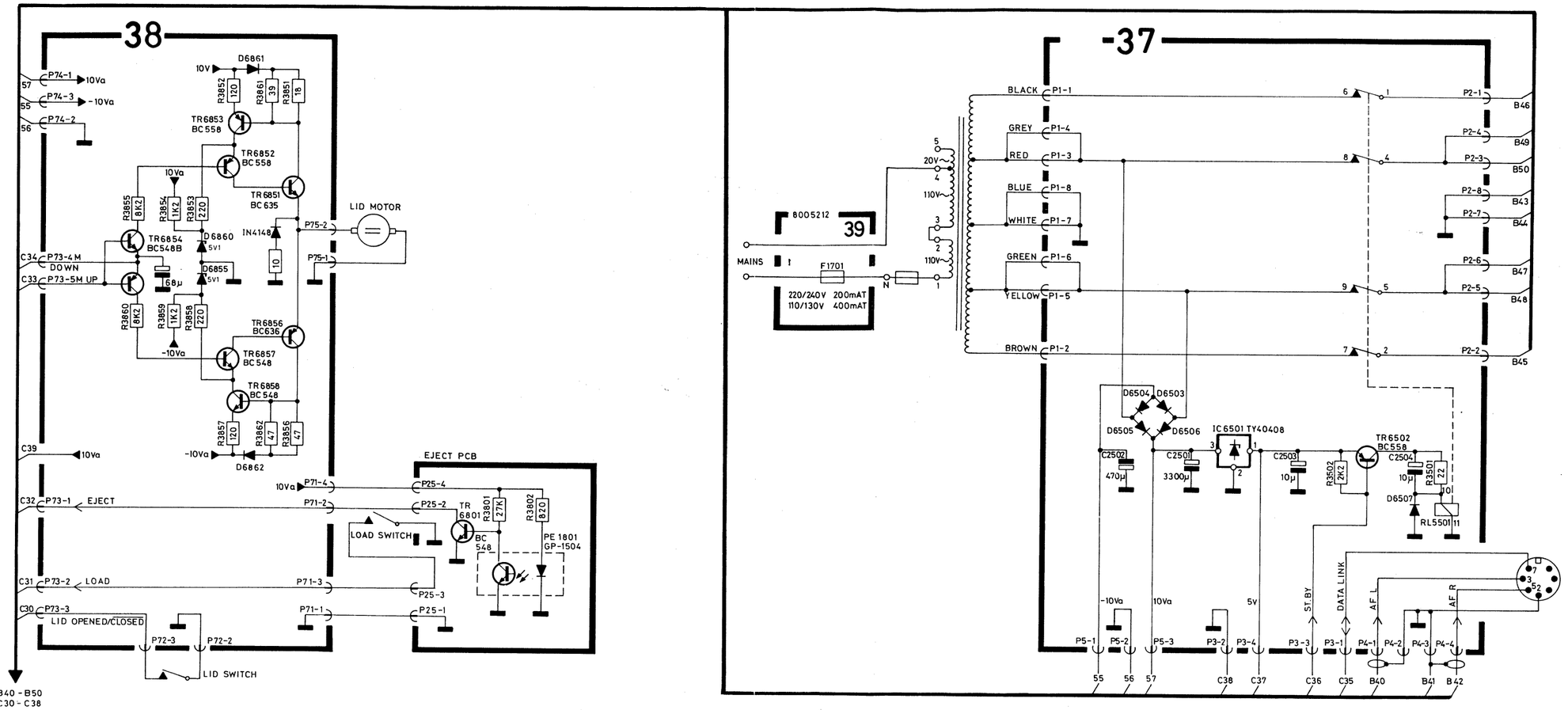
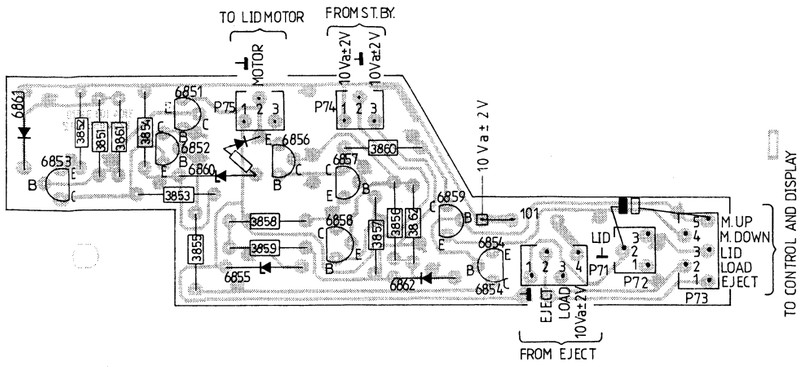


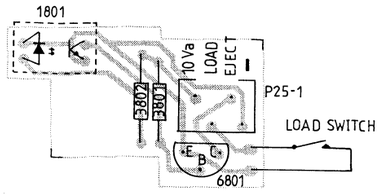
DIAGRAM D (Lid Motor Control, Eject Switch and St. By)



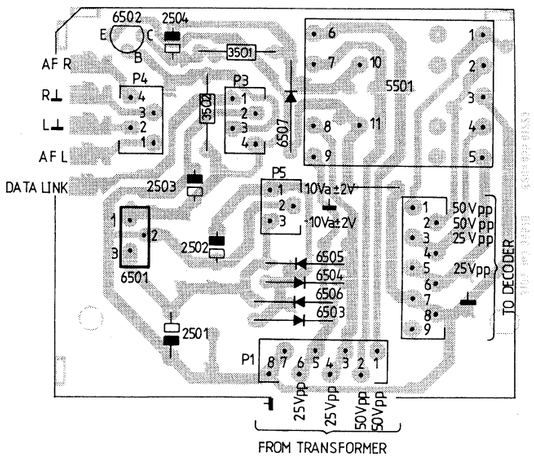
LID MOTOR CONTROL PCB 38



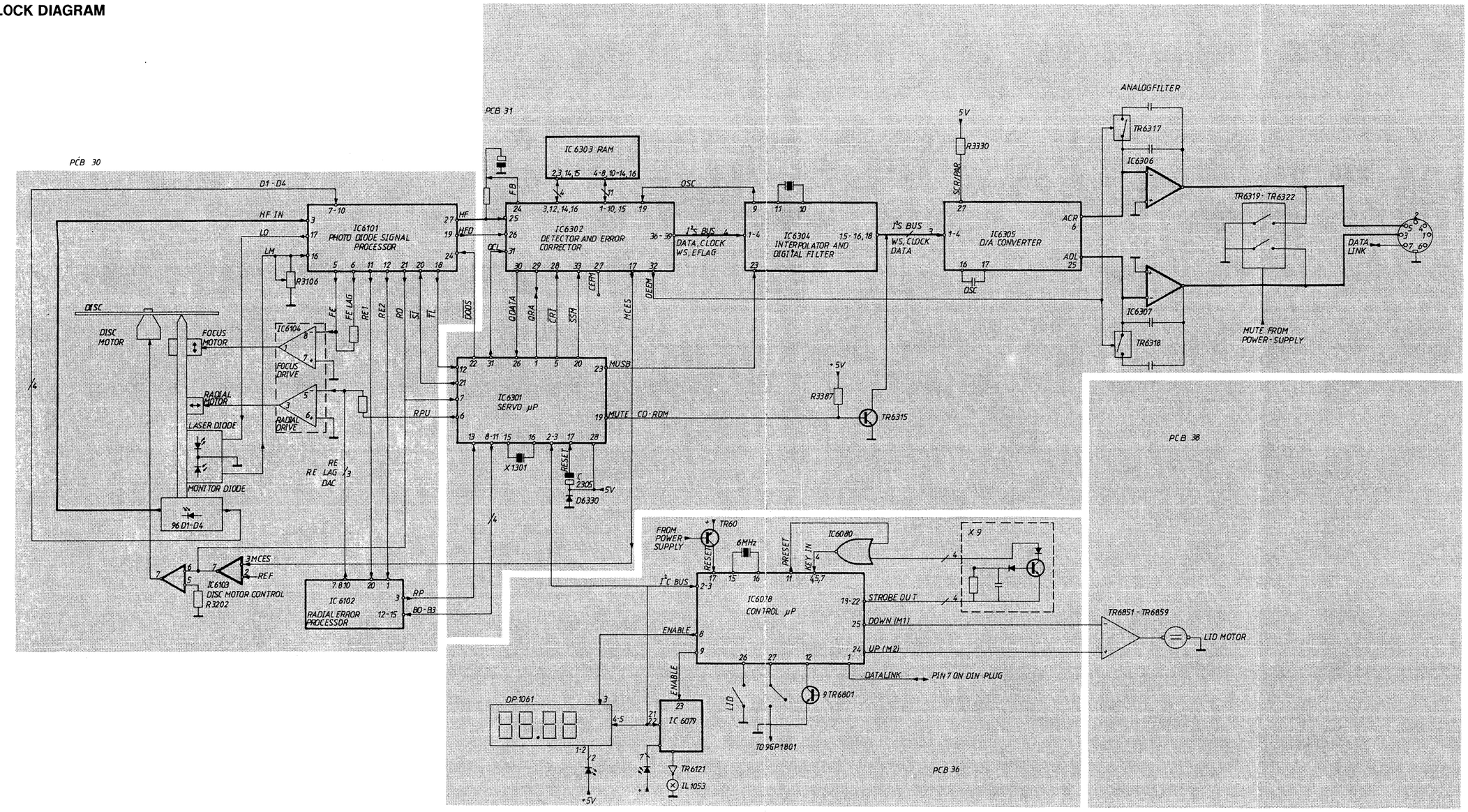
EJECT SWITCH



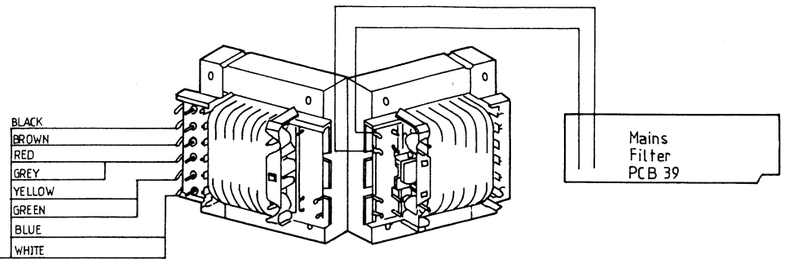
ST. BY PCB37

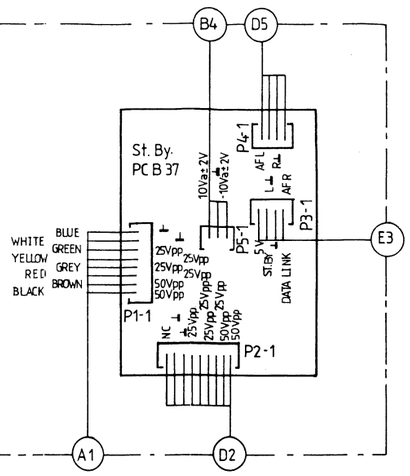


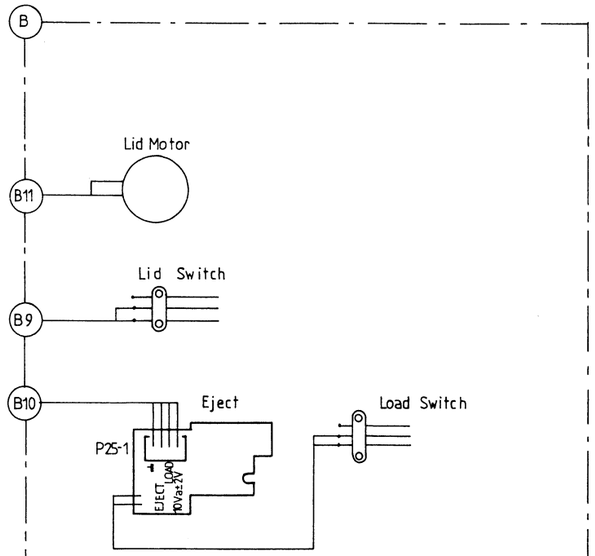
BLOCK DIAGRAM

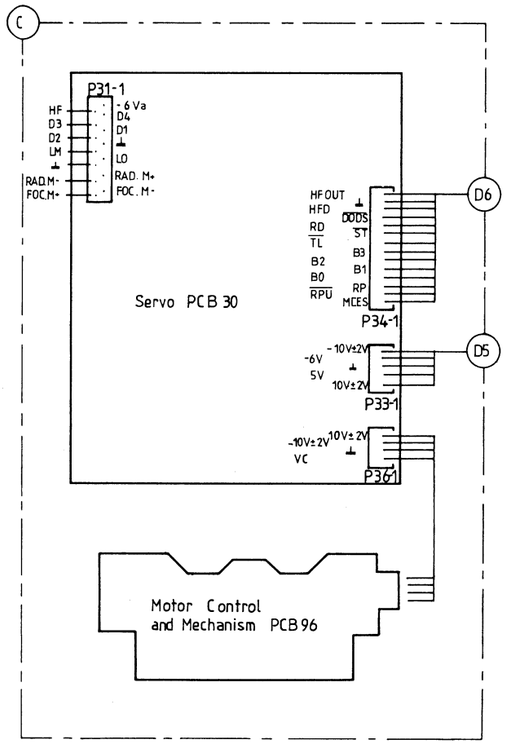


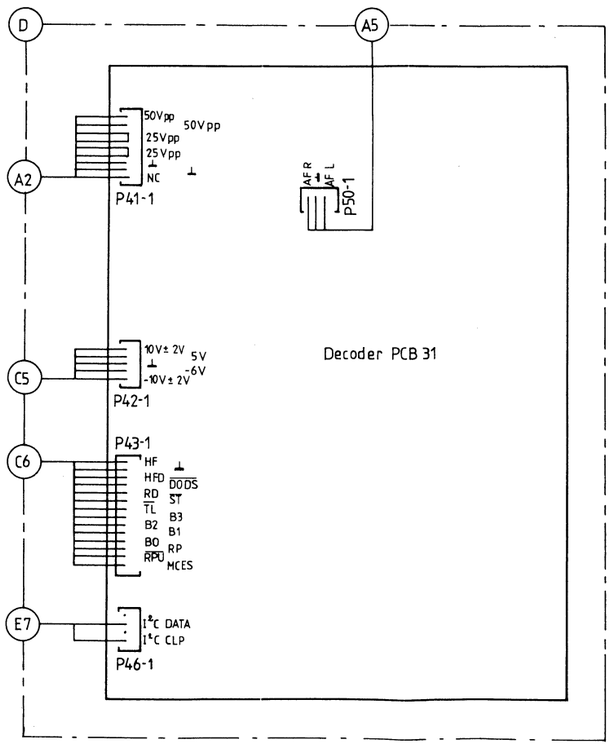
WIRING DIAGRAM

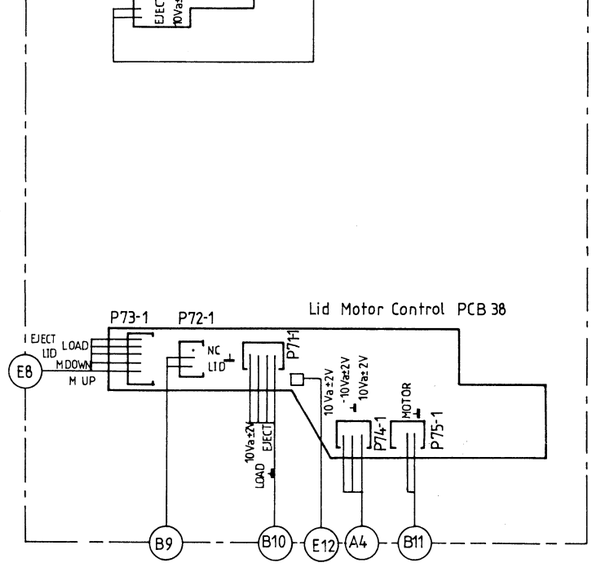


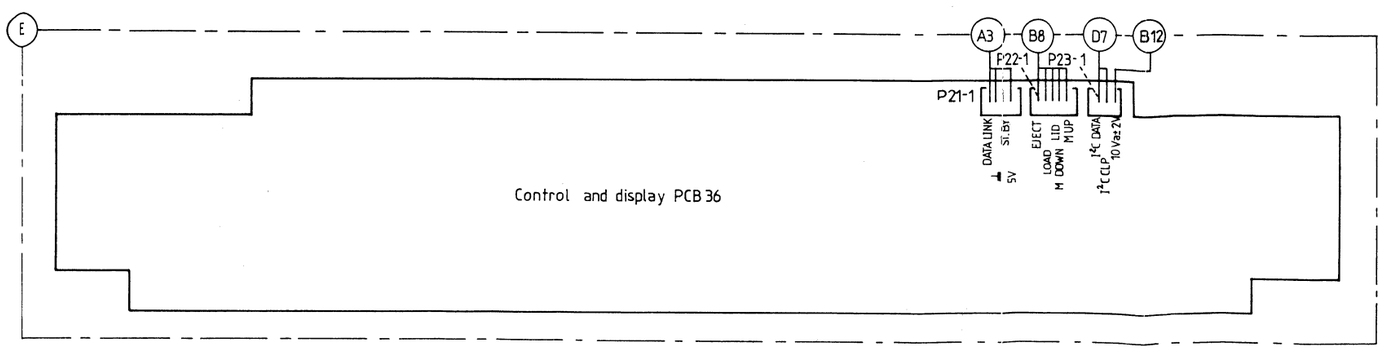






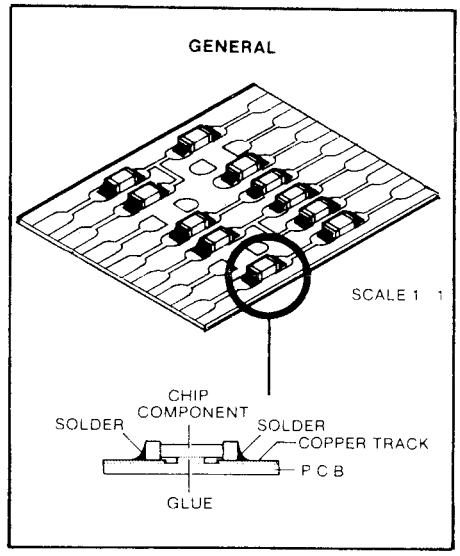


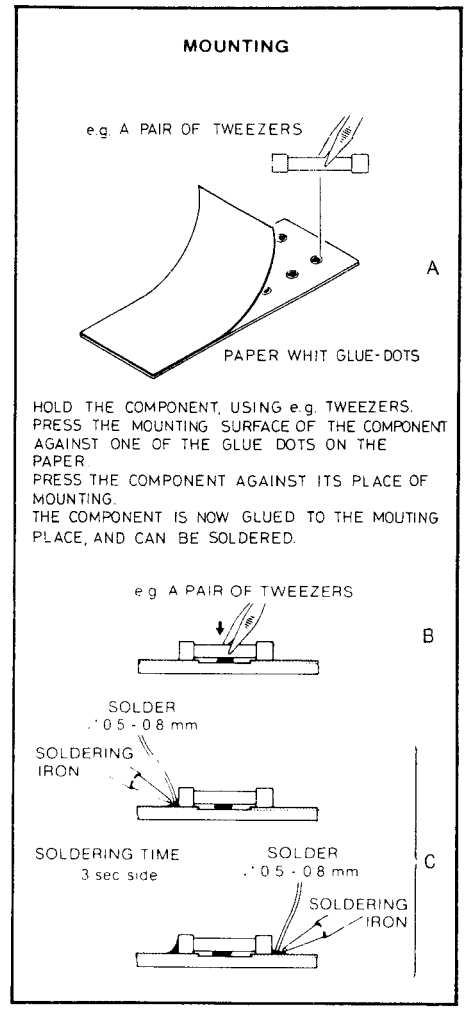


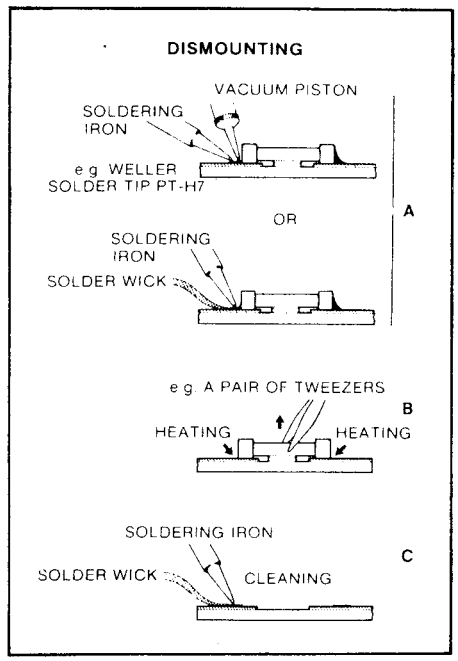


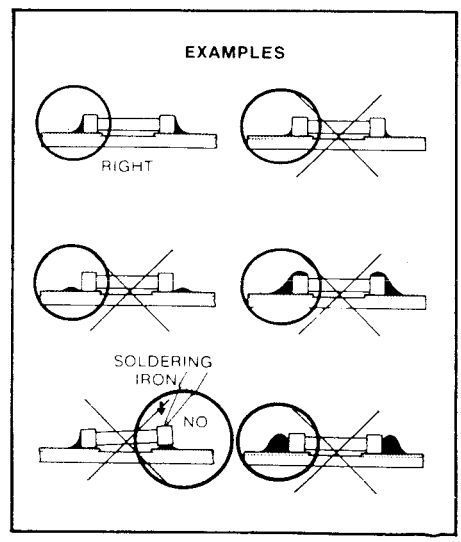
LIST OF ELECTRICAL PARTS

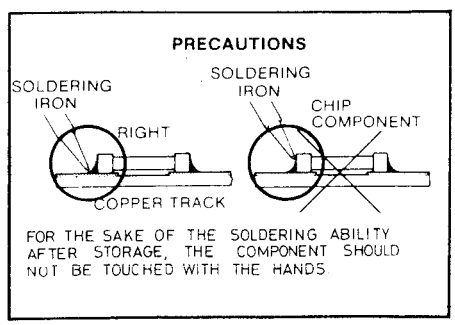
In the player chip components have been applied. For insertion and removal of chip components see the figure below




MOUNTING
e.g. A PAIR OF TWEEZERS
A
PAPER WHIT GLUE-DOTS
HOLD THE COMPONENT, USING e.g. TWEEZERS.
PRESS THE MOUNTING SURFACE OF THE COMPONENT AGAINST ONE OF THE GLUE DOTS ON THE PAPER.
PRESS THE COMPONENT AGAINST ITS PLACE OF MOUNTING.
THE COMPONENT IS NOW GLUED TO THE MOUTING PLACE, AND CAN BE SOLDERED.
e.g. A PAIR OF TWEEZERS
B
SOLDER .'05 - 08 mm
SOLDERING IRON
SOLDERING TIME 3 sec side
SOLDER .'05 - 08 mm
SOLDERING IRON
C






PRECAUTIONS
SOLDERING IRON
RIGHT
SOLDERING IRON
CHIP COMPONENT
COPPER TRACK
FOR THE SAKE OF THE SOLDERING ABILITY AFTER STORAGE, THE COMPONENT SHOULD NOT BE TOUCHED WITH THE HANDS

Standard resistors:

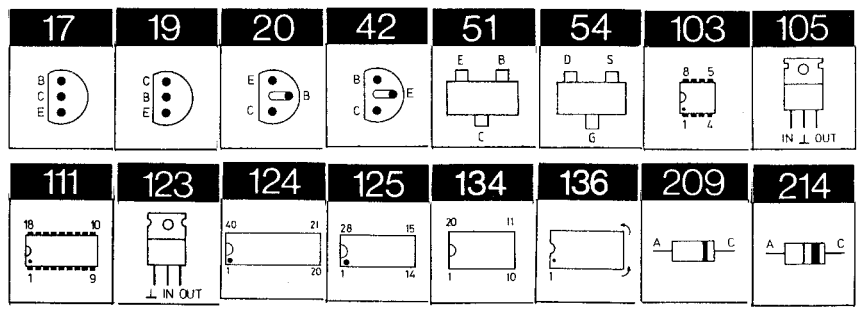
Resistors not mentioned are standard resistor.

Resistors SMD 2% 1/8 W

	X1	X10	X100	X1K	X10K	X100K	X1M	X10M
1.0 1.1 1.2			5011218 5011219	5011227	5011241 5011490	5011256 5011504	5011267	
1.5 1.8 2.0				5011228 5011229	5011243 5011244 5011501	5011259 5011260		
2.2 2.7 3.0			 5011499	5011230 5011231 5011500	5011245 5011247	5011261		
3.3 3.9 4.3				5011232	5011248 5011491	5011263		
4.8 5.1 5.6			5011222 5011223	5011234 5011235 5011236	5011250 5011493 5011251	5011265		
6.2 6.8 7.5			5011224 5011225	 5011238 5011239	 5011252			
8.2 9.1		5011270		5011240 5011489	5011254 5011255			

Resistors SMD 5% 1/8 W

	X1	X10	X100	X1K	X10K	X100K	X1M	X10M
1.0 1.2 1.5	5011333	5011295 5011296 5011203	5011274 5011299 5011205	5011197 5011273 5011306	5011272 5011310 5011189	5011207 5011195 5011198	5011320	5011332
1.8 2.2 2.7 3.0	 5011282 5011283	5011297 5011192 5011275	5011300 5011194 5011301	5011286 5011307 5011183	5011311 5011312 5011271 5011520	5011196 5011208 5011316		
3.3 3.9 4.7 5.1	5011289 5011290 5011291	5011202 5011298 5011191	5011188 5011302 5011303	5011184 5011308 5011193	5011313 5011314 5011284	5011317 5011318 5011206 5011436		
5.6 6.8 8.2	5011292 5011293 5011294	5011276 5011190 5011185	5011304 5011305 5011187	5011309 5010186 5011285	5011199 5011200 5011315	5011288 5011319 5011201		



PCB 30, 8005206
Servo

TR6108 8320721 **20** BC 338-16
TR6109 8320616 **51** BC 858B

IC6101△ 8340991 **125** TDA 5708
IC6102△ 8340992 **134** TDA 5709
IC6103 8340993 **103** NJM 45600
IC6104 8340605 **103** L 272MN

D6110-6111 8300058 **209** 1N 4148
D6114 8300058 **209** 1N 4148
D6118-6119 8300570 **209** HZ 7C2

R3101 5020966 12 Ω 5% 1/3W
R3104 5020967 18 Ω 5% 1/3W
R3106 5370355 potm. 1kΩ 20%
R3107-3108 5020965 4.7 Ω 2% 1/3W
R3112 5020288 1 MΩ 1% 1/4W
R3138 5020964 1.0 Ω 2% 1/3W
R3140 5020964 1.0 Ω 2% 1/3W
R3144 5020968 43 kΩ 1% 1/4W
R3156 5011494 150 kΩ 5% 1/8W
R3159 5020074 15 kΩ 1% 1/4W
R3160 5020971 4.7 Ω 1%

R3207	5020263	100 kΩ 1% 1/4W	R3163	5010056	82 Ω 5% 1/4W
R3208	5020969	47 kΩ 1% 1/4W	R3200	5020062	120 kΩ 5% 1/4W
R3209	5020049	4.7 kΩ 1% 1/2W	R3202	5011494	150 kΩ 5% 1/8W
C2101	4010192	47 nF 10% 50V	C2138	4200745	220 µF 16V
C2102	4000249	470 pF 5% 50V	C2139	4010192	47 nF 10% 50V
C2103	4200414	33 µF -10+50% 16V	C2140	4200745	220 µF 16V
C2104	4200482	47 µF 20% 10V	C2141	4130407	390 nF 10% 63V
C2105-2106	4010192	47 nF 10% 50V	C2150-2151	4130416	2.7 nF 1% 250V
C2107	4200482	47 µF 20% 10V	C2152	4130206	220 nF 10% 63V
C2108	4000254	10 nF 10% 50V	C2153	4130314	180 nF 5% 50V
C2109	4130379	270 nF 10% 63V	C2154	4130206	220 nF 10% 63V
C2110	4000253	5.6 nF 10% 50V	C2155	4130293	470 nF 10% 63V
C2111	4130405	470 nF 5% 50V	C2156	4130338	18 nF 10% 100V
C2112	4130406	150 nF 5% 50V	C2157	4000255	22 nF 10% 50V
C2113	4000248	100 pF 10% 50V	C2159	4130293	470 nF 5% 50V
C2117	4010173	4.7 nF 10% 50V	C2160	4010173	4.7 nF 10% 50V
C2134	4000248	100 pF 5% 50V	C2200	4200740	2.2 µF 25V
C2135	4000253	5.6 nF 10% 50V	C2201	4010202	3.9 nF 10% 50V
C2136	4130405	470 nF 5% 50V	C2202	4130217	330 nF 5% 50V
C2137	4010192	47 nF 10% 50V	C2203	4130410	18 nF 10% 50V

PCB 31, 8005207
Decoder

TR6314	8320729	**51** BC 818-16	TR6323	8320108	**20** BC 548B
TR6315	8320725	**51** BC 818-25	TR6324	8320615	**51** BC 848B
TR6316	8320616	**51** BC 858B	TR6325	8320616	**51** BC 858B
TR6317-6318	8320724	**54** BSR 56	TR6328	8320730	**19** BC 328-16
			TR6348	8320620	**51** BF 550
TR6319-6322	8320725	**51** BC 818-25	TR6350	8320615	**51** BC 848B

IC6301△	8340914	**125** MAB 8441P'T	IC6308	8340208	**105** MC 78M 15CT
IC6302△	8340841	**136** SAA 7210	IC6309	8340065	**105** UA 7805
IC6303△	8340927	**111** UPD 41416 C-20	IC6310	8340931	**123** MC 7906 CT
IC6304△	8340855	**136** SAA 7220	IC6311	8340222	**123** MC 79M15 CT
IC6305△	8340913	**136** TDA 1541'N5			
IC6306-6307	8340930	**103** LM 833			

D6330	8300058	**209** 1N 4148	D6342-6345	8300023	**209** 1N 4002
D6331-6332	8300245	**214** BAX 18	D6346-6347	8300245	**214** BAX 18
D6333-6335	8300058	**209** 1N 4148	D6353	8300245	**214** BAX 18
D6336	8300404	**209** HZ 4B2	D6356	8300309	**209** HZ 5B1 4V7
D6340-6341	8300245	**214** BAX 18	D6360	8300058	**209** 1N 4148

R3301	5020989	2.2 Ω 5% 1/3W	R3346-3347	5011328	4.7 MΩ 10% 1/8W
R3316	5011494	150 kΩ 5% 1/8W	R3348-3349	5020862	1.0 kΩ 1% 1/4W
R3320	5020982	33 Ω 5% 1/3W	R3350-3351	5020990	1.8 kΩ 1% 1/2W
R3321	5020965	4.7 Ω 2% 1/3W	R3352-3353	5020991	100 Ω 5% 1/3W
R3325	5011494	150 kΩ 5% 1/8W	R3354-3357	5020901	2.4 kΩ 1% 1/4W
R3326	5020964	1.0 Ω 2% 1/3W	R3358-3359	5020991	100 Ω 5% 1/3W
R3329	5020514	3.9 kΩ 5% 1/8W	R3370	5011514	3.9 kΩ 5% 1/8W
R3330	5020965	4.7 Ω 2% 1/3W	R3377	5011514	3.9 kΩ 5% 1/8W
R3331-3332	5020983	10 Ω 5% 1/3W	R3378	5011268	5.6 MΩ 10% 1/8W
R3333	5020984	22 kΩ 5% 1/3W			
R3335	5020985	150 kΩ 5% 1/3W			
R3336	5011515	2.4 kΩ 5% 1/8W			
R3340	5011328	4.7 MΩ 10% 1/8W			
R3341	5020055	4.7 MΩ 5% 1W			

C2301-2302	4000139	33 pF 5% 63V	C2309	4200380	1 µF -20+50% 63V
C2303	4200513	47 µF -10+50% 25V	C2310	4130379	270 nF 10% 63V
C2304	4010113	22 nF 30% 25V	C2311	4200747	6.8 µF 50V
C2305	4201035	2.2 µF -10+50% 63V	C2312	4200513	47 µF -10+50% 25V
C2306	4000234	47pF 5% 50V	C2313	4010113	22 nF 30% 25V
C2308	4010197	1.8 nF 10% 50V	C2314	4010192	47 nF 10% 50V
			C2315	4200513	47 µF -10+50% 25V

C2316	4010113	22 nF 30% 25V	C2360-2361	4130408	2.0 nF 2% 160V
C2319	4200759	1.4 µF 50V			
C2320-2321	4000234	47 pF 5% 50V	C2362-2363	4130413	1.0 nF 2% 250V
C2322	4010113	22 nF 30% 25V	C2364-2365	4200513	47 µF -10+50% 25V
C2323	4200513	47 µF -10+50% 25V			
C2324	4000326	680 pF 5% 50V	C2366-2367	4200511	100 µF 20% 10V
C2325	4200513	47 µF -10+50% 25V			
C2326	4010192	47 nF 10% 50V	C2375-2376	4010192	47 nF 10% 50V
C2328-2341	4000287	220 nF -20+80% 25V	C2377	4200359	220 µF -10+100% 63V
C2342-2343	4010192	47 nF 10% 50V	C2378	4010166	100 nF -20+80% 50V
			C2379	4000287	220 nF -20+80% 25V
C2344-2345	4200513	47 µF -10+50% 25V	C2385-2392	4010192	47 nF 10% 50V
C2350-2351	4100059	4.7 nF 2,5% 63V	C2395	4200368	100 µF -10+100% 63V
			C2396	4200751	4700 µF 20% 16V
C2352-2353	4130282	15 nF 2% 63V	C2397	4200312	1000 µF -10+100% 16V
C2354-2355	4130412	2.0 nF 2% 160V	C2398	4200359	220 µF -10+100% 63V
			C2400-2403	4200513	47 µF -10+50% 25V
C2358-2359	4200513	47 µF -10+50% 25V	C2404	4010166	100 nF -20+80% 50V

L5301	6850201	470 µH	L5302	6850201	470 µH
L5304	6850204	2.2 µH			

X1301	8090009	6.0 MHz	X1302	8090058	11.2896 MHz

PCB36, 8005209
Control and Display

TR6084	8320281	**42** BF 199	TR6121	8320316	**20** BC327
TR6091-6094	8320281	**42** BF 199	TR6129	8320377	**20** BC547C
			TR6133	8320152	**20** BC557B
TR6111-6114	8320281	**42** BF 199			

IC6078△	8341007	**136** MAB 8441	IC6080△	8340816	**136** HEF 4071 BP
IC6079△	8340467	**124** MM 5450N			

D6051-6052	8330211	Led bzx 79-b6V2 yellow	D6089	8300359	**209** BAW 62
			D6096-6099	8300359	**209** BAW 62
D6056	8330211	Led bzx 79-b6V2 yellow	D6116-6119	8300359	**209** BAW 62
D6060	8330211	Led bzx 79-b6V2 yellow	D6122-6123	8300201	**209** BZX 79C 6V2
D6063	8330211	Led bzx 79-b6V2 yellow	D6126-6127	8300201	**209** BZX 79C 6V2
D6071	8330211	Led bzx 79-b6V2 yellow	D6128	8300058	**209** 1N 4148
			D6130	8300173	**209** ZPD 8.2V 5% 4W
D6074-6075	8300023	**209** 1N 4002	D6131	8330211	Led bzx 79-b6V2 yellow
D6076	8330209	Led TLSR530 red			
D6077	8300359	**209** BAW 62	D6132	8300355	bzx 75C 2V1

DP1051△	8330146	NSM 4700A			

R3106	5020177	100 Ω 1% 1/4W	R3109	5020177	100 Ω 1% 1/4W

C2051	4010132	1 nF 5% 50V	C2084-2085	4010132	1 nF 5% 50V
C2052-2053	4200513	47 µF 25V	C2089-2090	4000248	100 pF 5% 50V
C2054	4010132	1 nF 5% 50V			
C2055-2056	4000278	27 pF 5% 50V	C2092-2093	4010132	1 nF 5% 50V
C2060-2065	4000198	3.9 pF 5% 63V	C2099-2100	4010132	1 nF 5% 50V
C2072-2075	4000198	3.9 pF 5% 63V	C2101	4000255	22 nF 10% 50V
			C2102	4200513	47 µF 25V
C2077	4010192	47 nF 10% 50V	C2103	4000255	22 nF 10% 50V
C2081-2082	4010132	1 nF 5% 50V			

3-5 3-5

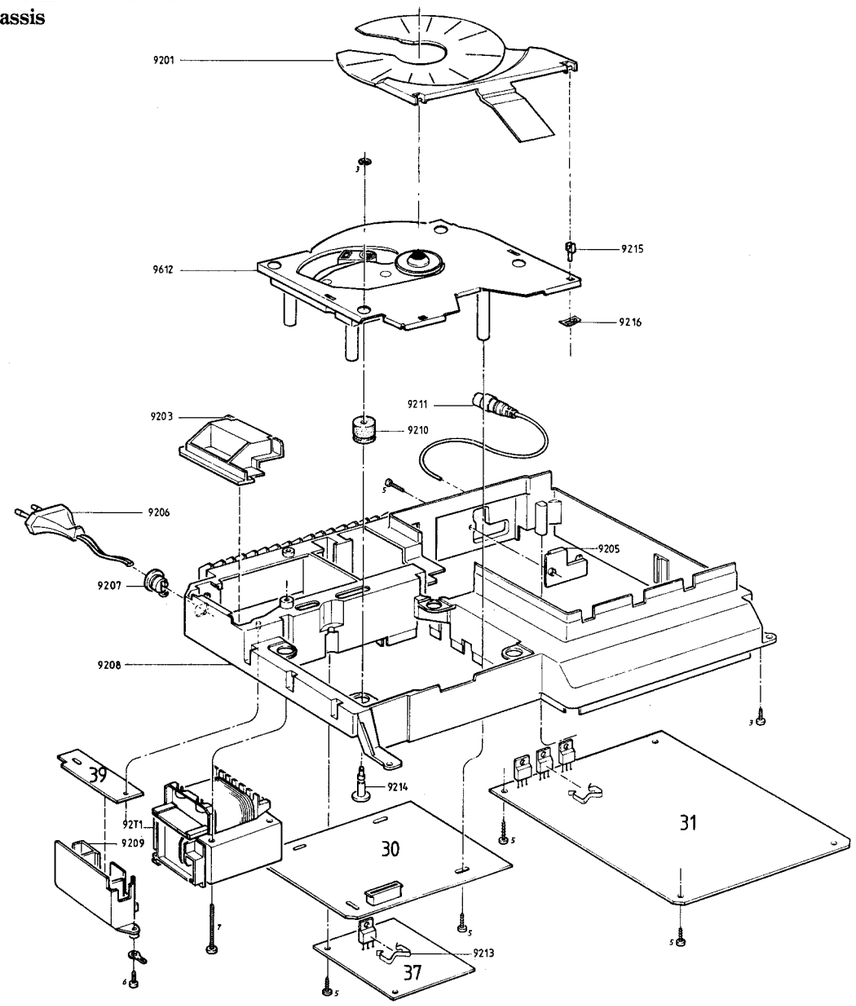
	L5051	6850160 47 mH			
	X1052	8090022 6 MHz			
	IL1053	8230089 200 ma 5V			
PCB 37, 8005211 **Stand By**	TR6502	8230104 **20** BC 558B			
	IC6501	8340065 **105** UA 7805			
	D6503-6507	8300023 **209** 1N 4002			
	R3501	5020998 22 Ω 5% 1/4W		R3502	5011034 2.2 kΩ 5% 1/4W
	C2501	4200670 3300 µF 16V		C2503-2504	4200487 10 µF 20% 50V
	C2502	4200611 470 µF 20% 25V			
	RL5501	7600091 Relay			
PCB 38 **Lid Motor control**	TR6851	8320378 **17** BC 635		TR6856	8320710 **17** BC 636
	TR6852-6853	8320104 **20** BC 558		TR6857-6858	8320108 **20** BC 548
	TR6854	8320108 **20** BC 548		TR6859	8320104 **20** BC 558
	D6855	8300479 **209** HZ 5C2 5V1		D6861-6862	8300245 **214** BAX 18
	D6860	8300479 **209** HZ 5C2 5V1			
	R3851	5020982 33 Ω 5% 1/4W		R3857	5020558 150 Ω 1% 1/4W
	R3852	5020558 150 Ω 1% 1/4W		R3858	5020460 220 Ω 5% 1W
	R3850	5020460 220 Ω 5% 1/4W		R3859	5020795 1.2 kΩ 5% 1/8W
	R3854	5020795 1.2 kΩ 5% 1/8W		R3860	5020418 8.2 kΩ 2% 1/8W
	R3855	5020418 8.2 kΩ 2% 1/8W		R3861	5020982 33 Ω 5% 1/4W
	R3856	5020982 33 Ω 5% 1/4W		R3862	5020982 33 Ω 5% 1/4W
PCB 39, 8005212 **Mains filter**	F1701	6600037 Fuse 200 mA EU 6600059 Fuse 400 mA US			
Eject switch	TR6801	8320108 **20** BC 548B			
	PE1801	8330156 GP-1S04			
	R3801	5010403 27 kΩ 5% 1/4W		R3802	5010000 270 Ω 5% 1/4W

△ betyder at statisk elektricitet kan ødelægge komponenten.
△ indicates that static electricity may destroy the component.
△ bedeutet, daß statische Elektrizität die Komponente zerstören kann.
△ signifi que électricité statique peut detruire le composant.

4-1

4-1

MECHANICAL PARTS LIST
Main Chassis

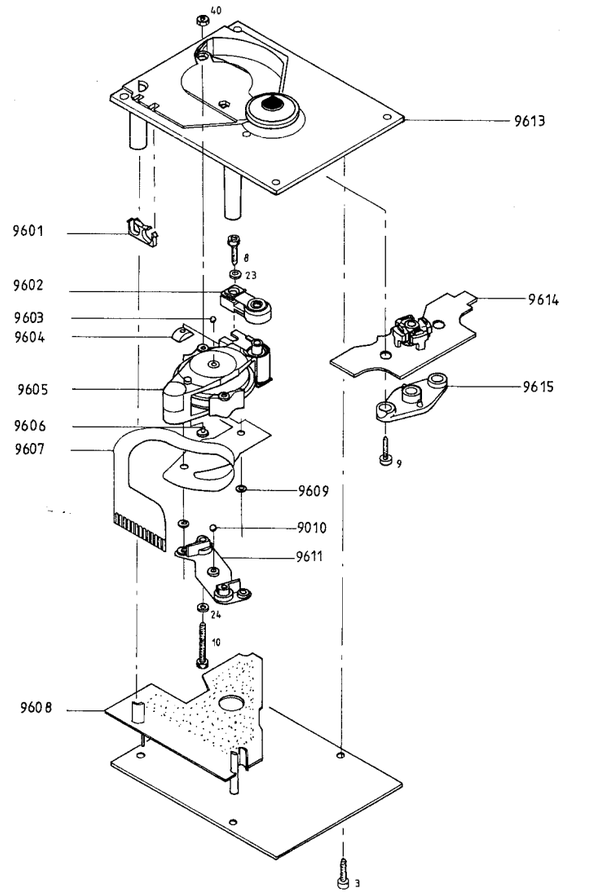


30Modul 8005206 Servo
31Modul 8005207 Decoder
37Modul 8005211 Stand by
39Modul 8005212 Mains filter

9201	3458315	Disc. platte	9209	3131263	Housing
9203	3162249	Cover	9210	2938239	Rubber bushing
9205	3152586	Holder	9211	6270376	Signal lead din.
9206	6271102	Mains cable 5122/22	9213	2816195	Spring (transistor)
	6270251	Mains cable 5123	9214	2834103	Shaft
	6271091	Mains cable 5125	9215	3030094	Hinge
9207	2641119	Holder	9216	2395051	Locking plate
9208	3114288	Chassis			

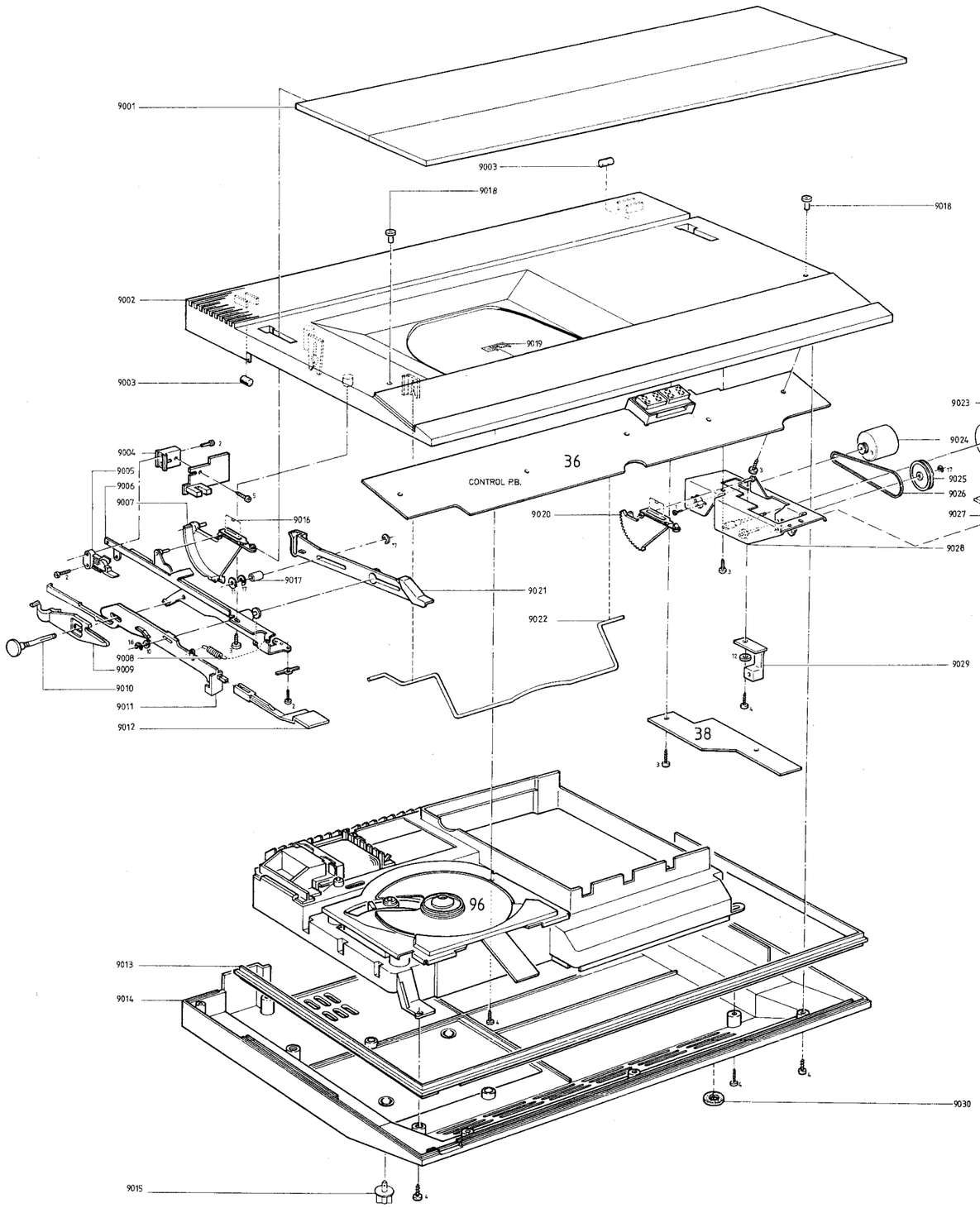
92T1	8013404	Transformer EU
	8013405	Transformer US

Mechanism



9601	3152593	Clamp f. flexprint	9608	3302439	Screen
9602	8330210	Focusunit	9609	2622426	Washer f. foil
9603	2917024	Ball	9610	2917024	Ball
9604	2389077	Spec. nut	9611	2905116	Pivot plate
9605	3131296	Rafoc.		The disc motor system pos.	
9606	3010031	Rubber stop		no. 9613, 9614 and 9615 are one	
9607	6141131	Flex print		unit part no. 3114290	

Top Chassis



36Modul	8005209	Control and Display
38Modul		Lid Motor Control
96Modul		CD Mechanism

9001	3162190	Dust cover	9016	2819227	Spring
9002	3430397	Cabinet	9017	2930095	Bushing
9003	3341052	Plug	9018	3010030	Stop Blocke
9004	3152590	Blok	9019	3370151	Window
9005	7400320	Switch	9020	3030090	Hinge plage
9006	3124103	Mount. plate	9021	2854114	Arm
9007	3030089	Hinge plate	9022	2514053	Bracket
9008	2810201	Spring, short	9023	2700062	Gear whell
9009	2854113	Arm	9024	8400168	Motor
9010	2834104	Shaft	9025	2722037	Pulley f. belt
9011	2854112	Arm	9026	2732078	Belt
9012	2854129	Arm, eject	9027	7400320	Switch
9013	3430398	Frame	9028	3124119	Mount. plate f. motor
9014	3454369	Bottom	9029	3152508	Holder
9015	2938255	Transport screw	9030	3035045	Foot f. bottom

Screws, washers, etc.

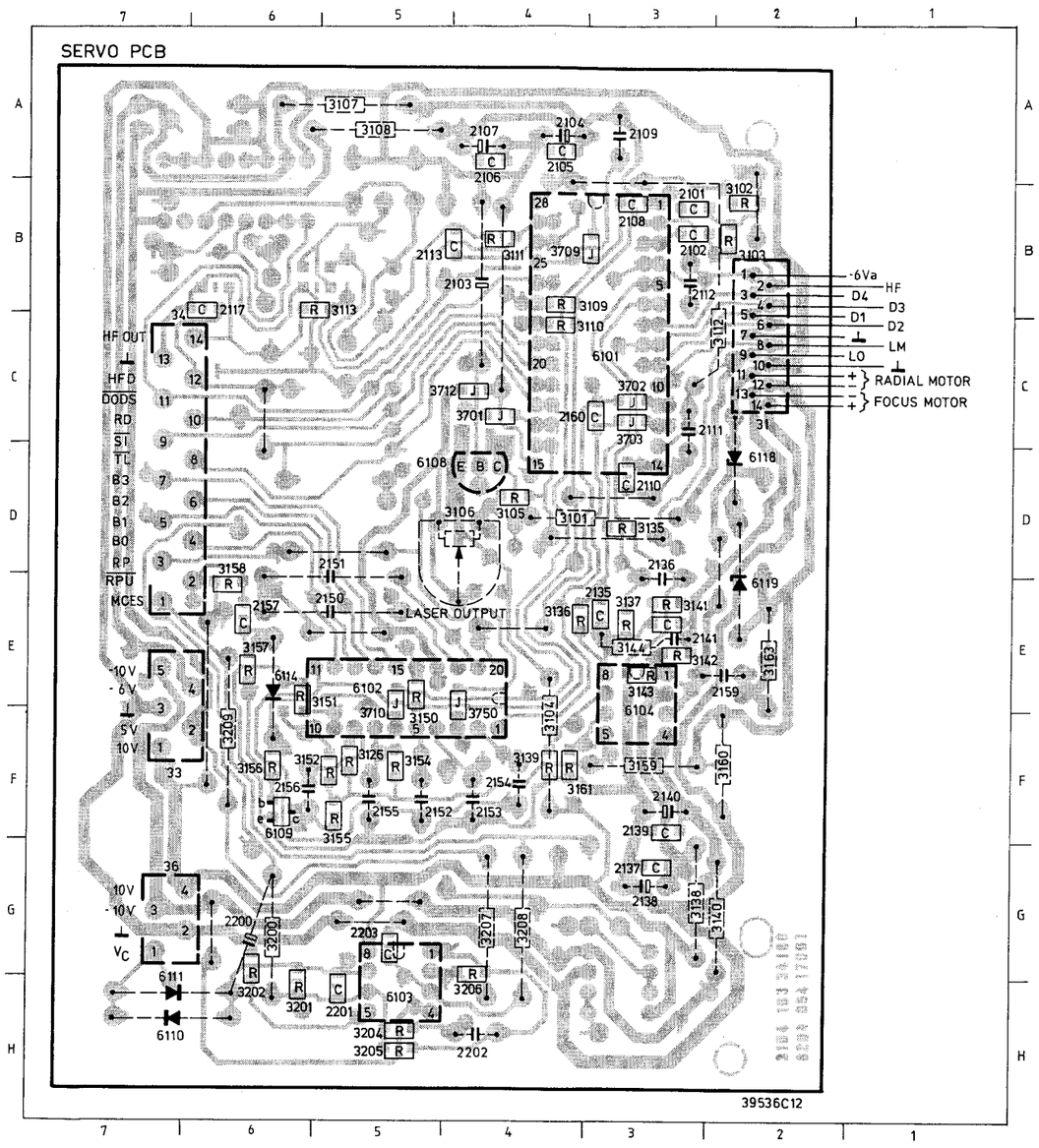
1	2033013	Screw AM 1.6x3 DIN 84	10	2038120	Screw Pan Torx 3x25
2	2034085	Screw Tap Torx M2x10	20	2622271	Washer 2.7x6.5x0.5
3	2013141	Screw Pan Tap Torx 4Nx9.5	21	2624061	Washer Curved 4.2
			22	2622041	Washer 3.2x7
4	2013146	Screw Pan Tap Torx 4Nx13	23	2622348	Washer 2.3 DIN 125
			24	2624013	Washer FJ 03 B3 DIN 127
5	2013137	Screw Plast Torx M3x10			
6	2038119	Screw Tap Torx M3x10	30	2390094	Retain Ringst 1.5
7	2042059	Screw Tap Torx M4x35	31	2390096	Retain Ringst 1.9
8	2011038	Screw Gev. Pan Torx 2.2x10	32	2390001	Retain Ringst 2.3
			33	2390002	Retain Ringst 3.2
9	2013149	Screw Gev. Pan Torx 2.9x16	40	2380112	Nut M3

Parts not shown

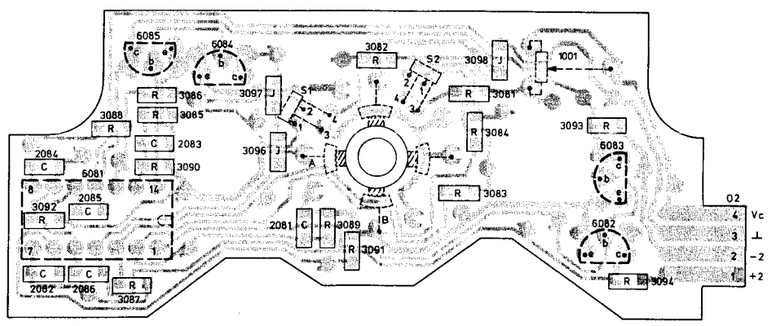
3397635	Foam packing, right	3634030	Glass disc
3397636	Foam packing, left	3634031	Test disc
3392012	Outer carton	3634032	Magnet ring
*3946038	Folie	3505436	Owner's Manual DK
3629107	Blade T6 short	3505437	Owner's Manual S
3629037	Blade T8 short	3505438	Owner's Manual SF
3629102	Blade T10 long	3505439	Owner's Manual GB
3629038	Blade T10 short	3505440	Owner's Manual D
3629103	Blade T20 short	3505441	Owner's Manual NL
3629109	Screw driver T6	3505442	Owner's Manual F
3629108	Screw driver T8	3505442	Owners Manual USA
3629047	Screw driver T10		
3629104	Screw driver T20		
3634027	Support		

**Foile 3946038 is solde by the metre*

5-1



DISC MOTOR CONTROL



Bang&Olufsen

KONTROL, REPARATION OG JUSTERING AF CD LØBEVÆRK

For at forhindre metalsplinter i at komme ned i løbeværket, er det nødvendigt at reparationspladsen er helt ren.

PHOTODIODERNE OG LASEREN ER MERE FØLSOMME OVERFOR STATISK EL END MOS IC'er. UFORSIGTIG BEHANDLING UNDER SERVICE KAN REDUCERE LEVETIDEN DRASTISK. DERFOR SKAL DET SIKRES AT ARBEJDSPLADSEN ER BESKYTTET MOD STATISK EL.

Ved reparation af løbeværket skal der udvises forsigtighed for at undgå beskadigelse af focus bladfjederen.

Servicering af RAFOC enheden (= Radial og Focus enhed, pos. nr. 9605, se exploded view).

Tag CD løbeværket med servo PCB30 ud af apparatet.

Afmonter det fleksible print fra P31 på servo PCB30 ved at trække den øverste del af stikket op, og tage det fleksible print ud.

De 4 skruer, som holder servo PCB30, skrues af.

Servo PCB'en kan nu tages af.
RAFOC enheden kan tages ud ved at løsne de 2 M3 x 25 fastspændingsskruer.

Bemærk: Når de nævnte skruer løsnes, er de 2 møtrikker på oversiden af løbeværket løse.
Armlejet pos. 9610 trækkes ud, og RAFOC enheden med det fleksible print kan nu tages ud.

BEMÆRK! Ved montering af RAFOC enheden, er det meget vigtigt, at det fleksible print ligger helt op mod topchassiset på CD løbeværket, der hvor holder pos. 9601 skal holde printet fast. For at forhindre at RAFOC enheden kan gå imod det fleksible print, kan det være nødvendigt at lime printet fast mod topchassiset med hurtig tørrende lim. Dette skal dog gøres meget forsigtigt.
Hvis laser eller monitor diode er defekt, er det nødvendigt at skifte RAFOC enheden pos. 9605. Efter montering af RAFOC enheden skal det sikres, at enheden kan bevæges helt frit gennem hele vandringen.
Dette kan kontrolleres med en trykfjedermåler, som holdes imod magneten på fokusenheden. Friktionen skal være under 25 mN gennem enhedens hele vandring.

CHECK, REPAIR AND ADJUSTMENT OF THE CD MECHANISM

To prevent loose metal objects from getting in the CD mechanism, it will be necessary to see to a clean repair station.

THE PHOTODIODES AND THE LASER ARE MORE SENSITIVE TO ELECTROSTATIC DISCHARGES THAN MOS ICS.
CARELESS HANDLING DURING SERVICING MAY REDUCE LIFE EXPECTATION DRASTICALLY.
THEREFORE, CARE SHOULD BE TAKEN, THAT THE REPAIR STATION IS PROTECTED AGAINST STATIC ELECTRICITY.

When effecting repairs to, or making measurements on the CD mechanism, be careful not to damage the flat springs of the focusing unit.

Servicing the RAFOC unit (= Radial and Focusing unit, pos. 9605. See exploded view).

Take the CD-mechanism and servo PCB30 assembly out of the set.

Remove the flexible PCB from connector P31 on the servo PCB by lifting the upper part of the connector and taking the flexible PCB out.

Undo the 4 screws on the conductor-side of the servo PCB30.

The servo PCB can now be removed. The RAFOC unit can be removed after the two fixing screws M3 x 25 have been loosened.

Caution: when doing so, the two nuts M3 on the upper side of the CD mechanism come loose.
Now the pivot plate pos. 9610 can be removed. After removing the clamping piece, pos. 9601 the RAFOC unit/flexible PCB assembly can be taken out.

ATTENTION: when mounting the RAFOC unit, see to it that the flexible PCB rest well against the mounting plate at the height of the clamping piece (pos. 9601).
In some cases, after exchanging the RAFOC unit/flexible PCB assembly, it may be necessary to glue the flexible PCB with a fast-drying glue to prevent the RAFOC unit from rubbing against the flexible PCB.
The gluing should be done very carefully.
When the laser and/or the monitor diodes are defective, it will be necessary to replace the RAFOC unit, pos. 9605.
After mounting the RAFOC unit you should make sure that the arm runs clear over the entire disc diameter.
This can be checked by means of a spring-pressure gauge which is held against the magnet of the focusing unit. The friction of the arm, measured over the entire meter reading, may not be greater than 25 mN.

En hurtig kontrol af RAFOC enhedens frigang kan gøres i service position 1, hvor enheden kan bevæges gennem hele vandringen med << og >> tasterne. (Se servicetips side 7.1).
Efter montering af RAFOC enheden skal laserarmens vinkelindstilling kontrolleres. Playability efter montering af RAFOC enheden kan afprøves med testplade 5A.

A fast check of the clearance of the arm is possible in service position 1. The RAFOC unit can be moved across the diameter of the disc by operating the SEARCH FORW. and REV. keys. (See servicetips page 7.1).
After mounting the RAFOC unit the angle setting of the laser arm should be checked.
Playability after mounting the RAFOC unit can be checked using test disc 5A.

Udskiftning af servo PCB30, RAFOC enhed pos. nr. 9605 eller focus enhed pos. nr. 9602

Ved udskiftning af en af de nævnte dele, skal følgende kontrolleres:
Tilslut DC voltmeter med + til 30P31 ben 13 og - til 30P31 ben 14 (stel).

Hvis der er monteret en 820 kohms modstand fra ben 8 på 30IC6104 til -6 Va, afmonteres denne.

Ilæg testplade 5 (bestillingsnr. 3634031) og sæt apparatet i serviceposition 2 ved at kortslutte ben 4 på 36IC6078 til stel, samtidig med netstikket sættes i.

Tryk ADVANCE 2 gange.

Hvis spænding overstiger +130 mV monteres 820 kohms modstanden fra ben 8 på 30IC6104 til -6 Va.

Replacing the servo PCB30, RAFOC unit pos. no. 9605 or focusing unit pos. no. 9602

When replacing one of the mentioned parts, the following shall be checked:
Connect DC voltmeter with + to 30P31 pin 13 and - to 30P31 pin 14 (ground).

If a resistor of 820 kohms is mounted from pin 8 of 30IC6104 to -6 Va, this should be dismounted.

Put test disc 5 (part no. 3634031) on the turntable, and put the player in service position 2. (Short circuit pin 4 of 36IC6078 to ground, while plugging in the mains plug).

Then press Advance twice.

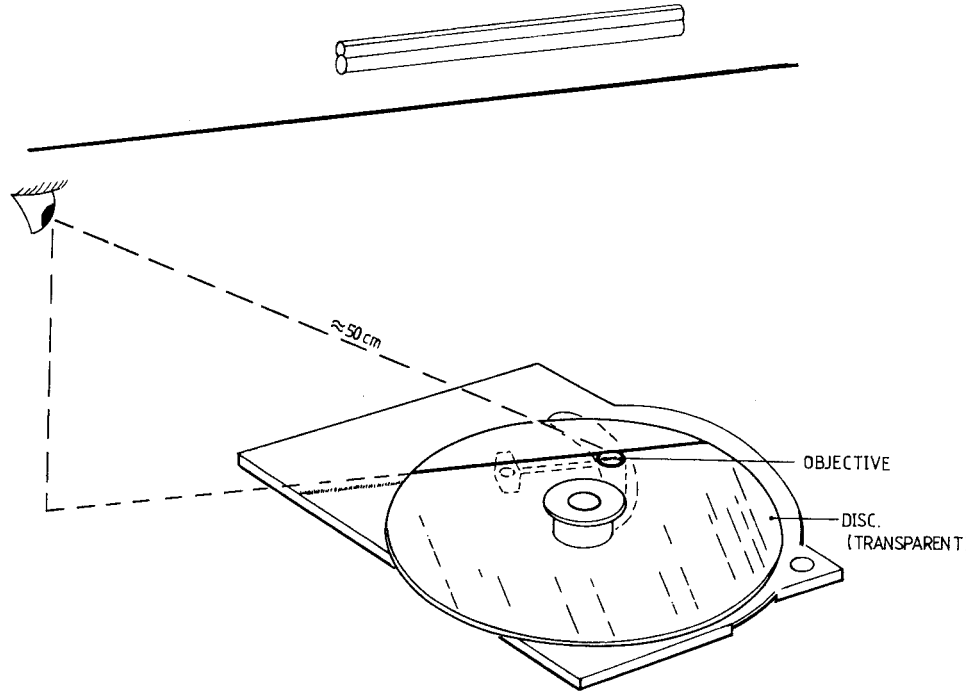
If the voltage measured, exceeds +130 mV, the resistor of 820 kohms shall be mounted from pin 8 of 30IC6104 to -6 Va.

Kontrol af vinkel indstilling på laserarm

Vinkel indstillingen kan kontrolleres efter glasplademe-toden, som er forklaret i det efterfølgende.

Checking the angle setting

The angle setting can be checked with the glass-disc method which is explained below.



Læg glasplade (bestillingsnr. 3634030) på pladeholde-ren. Glaspladen skal hvile jævnt mod pladeholderen.

Placer CD løbeværket under en lyskilde hvorunder der er en lige linie (f.eks. et lysstofrør med gitter).

Placer laserarmen midt i dens radiale vandring.

Drej løbeværket indtil laserarmen er parallel med linien fra lyskilden.

Se i forlængelse af den reflekterede linie på henholds-vis glasplade og optik. Der må ikke være mere end 4 mm afstand mellem de 2 linier.

Placer CD løbeværket sådan at linien der reflekteres af optikket løber gennem optikkets centrum.

Hvis linien der reflekteres af glaspladen er indenfor optikkets overfalde, er vinkel indstillingen i orden.

Put glass disc part no. 3634030 on the turntable. Male sure that the glass disc beds down well on the turntable.

Place the CD mechanism under a light source, under which there is a straight line (e.g. under a fluorescent tube with grid).

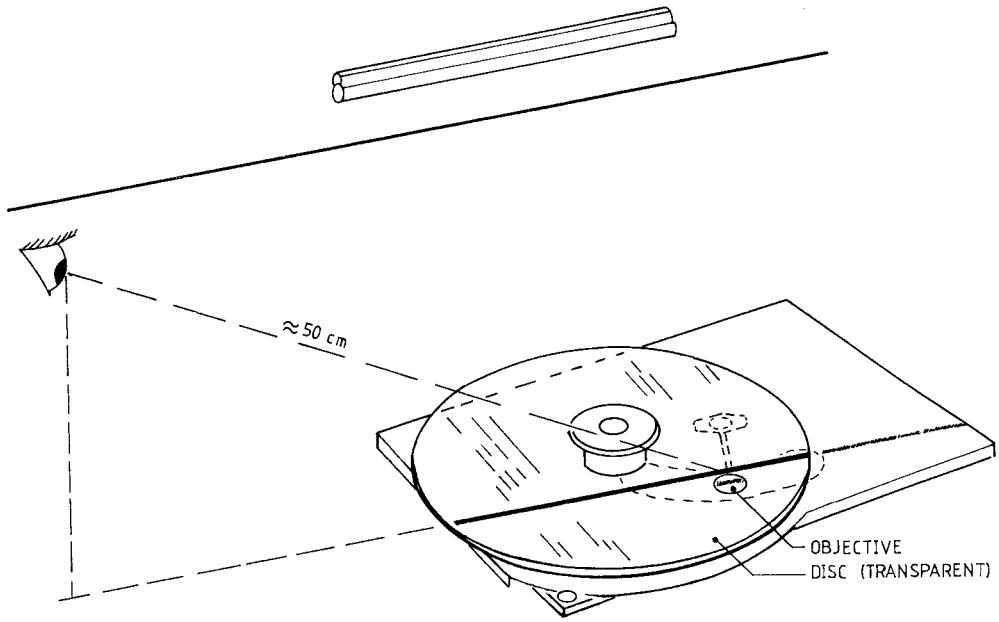
Set the arm to mid-position of its radial track.

Turn the mechanism until the arm is parallel to the line under the light source (see figure below).

Look into the direction and in the extension of the line to the reflection there of on the glass disc and in the objective. These lines should not be apart more than 4 mm.

Place the CD mechanism so that the reflected line runs across the centre of the objective.

When the line that is reflected by the glass disc stays within the surface of the objective, the angle setting is correct.



Drej CD løbeværket 90° i forhold til forrige position.

Hold laserarmen i midterposition.

Gentag ovenstående kontrol.

Justering af vinkel indstilling

Hvis kontrol af vinkel indstilling viser, at vinklen er udenfor tolerance, skal den *ikke* justeres til minimum afvigelse men blot indenfor tolerance.

Efter justering af vinkel indstilling, skal laserarmens friktion kontrolleres. Dette kan gøres med en tryk-fjedermåler, som holdes mod magneten på focus-enheden.

Friktionen skal være under 25 mN gennem enhedens hele vandring.

Hvis friktionen er for høj skal RAFOC enheden udskiftes og vinkel indstillingen skal kontrolleres igen.

Turn the CD mechanism through 90° relative to the previous position.

The arm must be kept in mid-position (see figure above).

Repeat the previous check.

Adjusting the angle setting

If a check on the angle setting shows that the angle falls outside the toelerance, the angle should *not* be adjusted for minimum deviation, but it should be adjusted within the tolerance.

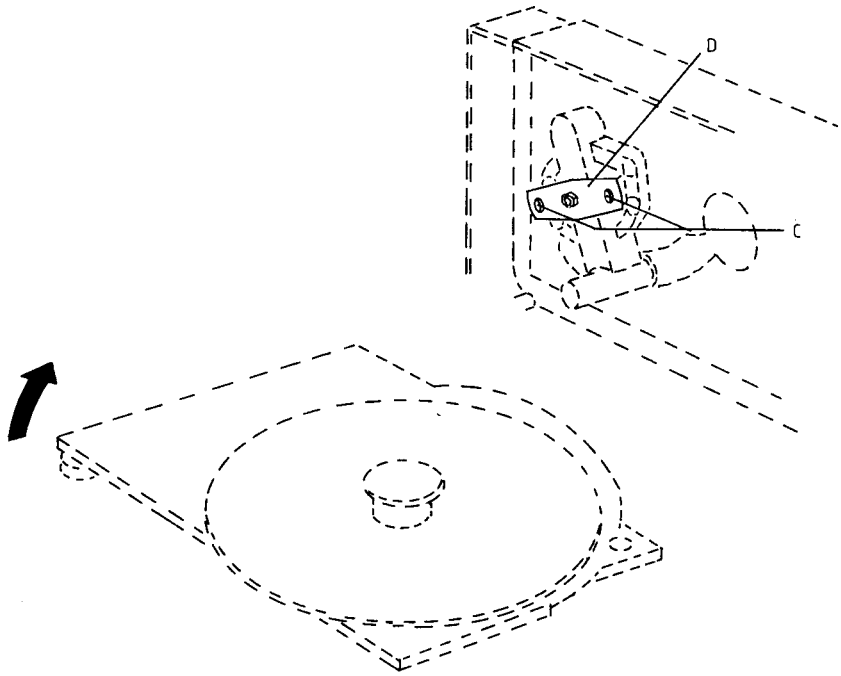
After adjusting the setting, the friction of the arm must be checked. This is done by means of a spring pressure gauge which is held against the magnet of the focusing unit.

The friction of the arm, measured over the entire meter reading, should not be greater than 25 mN.

When the friction appears to be too high, the RAFOC unit must be replaced and the angle setting shall be checked once more.

Justering af vinkel indstilling gøres som beskrevet i det efterfølgende:

Adjustment of the angle setting is performed as follows:



Skruerne C løsnes indtil armlejet D kan forskubbes. Vinkelindstillingen justeres ved at skubbe armlejet D som vist på nedenstående tegning.

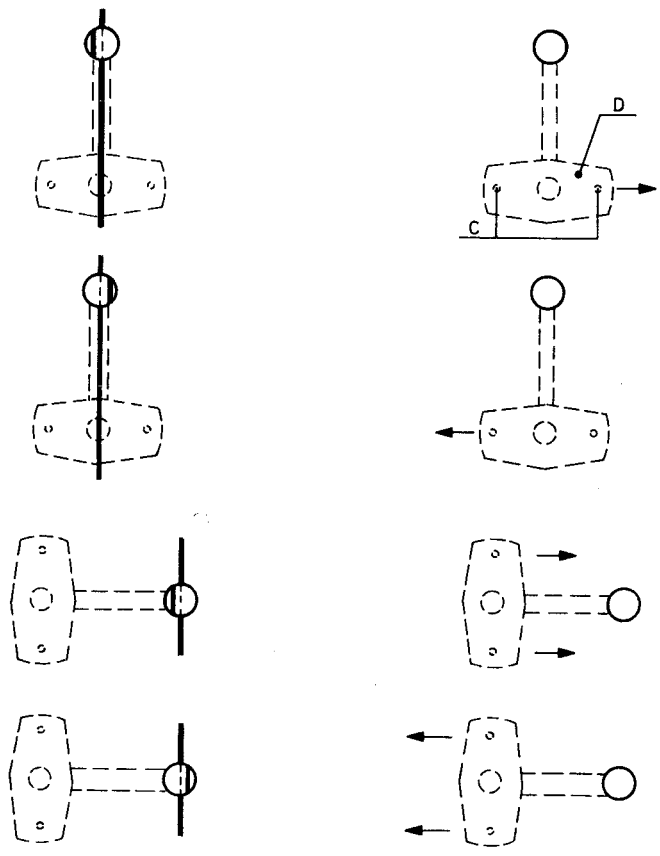
Loosen screws C (see figure above) until bearing plate D can be displaced. Correct the angle setting by moving the bearing plate into the direction shown in figure below.

Skruerne C spændes medens det sikres at indstillingen ikke flytter sig.

Tighten screws C, ensuring that the setting does not drift.

Foretag kontrol af vinkelindstilling.

Then double check the setting in two directions.



Udskiftning af fleks PCB pos. 9607
Afmonter RAFOC enheden.

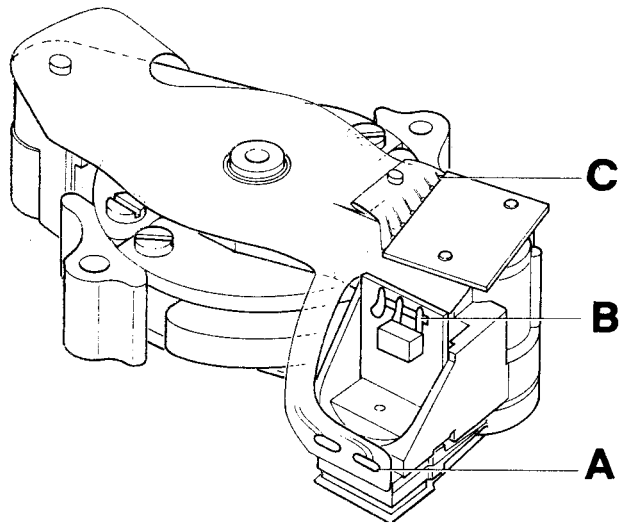
De 2 tilslutninger A kan nu loddes fra, og før tilslutningerne C loddes fra, skal placeringen af fleks-PCB'en markeres på fotodiode PCB'en.

Dette gøres ved hjælp af en blyant, så den nye fleks-PCB kan placeres i nøjagtig samme position.

Replaceing the flexible PCB pos. 9607
Demount the RAFOC unit.

Desolder the connections A of the flexible PCB.

Before desoldering the connections C of the photodiode PCB, the position of the connecting points of the photodiode PCB should be marked, so that afterwards the PCB can correctly be replaced.



Fralodningen af de 6 tilslutninger C skal gøres ved at varme hver enkelt tilslutning op og løsne forbindelsen med f.eks. bagkanten af et skalpelblad.
N.B. Dette skal gøres med stor forsigtighed.
Herefter fraloddes de 4 tilslutninger til radial spolerne inden de 3 tilslutninger (B) til laser PCB'en loddes fra.

PCB'en kan nu løftes af, og inden den nye PCB monteres, loddes et lille lag loddetin på tilslutningerne C.

Den nye fleks-PCB placeres nu korrekt i.flg. blyantensmærkerne og tilslutningerne til de radiale spoler loddes nu fast inden tilslutningerne A og B.

PCB'en placeres på plads under fotodioden PBC'en, og hver enkelt tilslutning varmes let op med en loddekoble, til lodningerne løber sammen.

For montering af RAFOC enheden, se afsnittet om servicering af RAFOC enhed.

Now the 6 connections C of the photodiode PCB can be desoldered by heating the pins C one by one until the flexible PCB comes loose.
This should be done very carefully.
Desolder the 4 connections of the radial coils.
Unsolder the 3 connections (B) of the laser PCB.

The PCB can now be taken off, and before the new PCB is mounted, the connections C should be provided with a small coating of tin.

The new PCB is now placed according to the marks on the photodiode PCB, and the 4 connections of the radial coils are soldered before the connections A and B.

Now the PCB is placed correct below the photodiode PCB, and the 6 connections C can now be heated so that they become soldered to the photodiode PCB.

For mounting the RAFOC unit, see section concerning servicing the REFOC unit.

Udskiftning af focus enhed pos. 9602
De 2 tilslutninger fra fleks PCB'en til focus enheden loddes fra.

Skruen der holder focus enheden skrues ud. Bemærk, gevindstykket (pos. 9604) vil gå løs.

Focus enheden kan nu tages af.

Ved montering af ny focus enhed er placeringen fikseret, og justering er ikke mulig.

Replacing the focusing unit pos. 9602
Desolder the 2 connections of the flex PCB on the focusing unit.

Remove the screw fastening the focusing unit. As a result the fixing piece (pos. 9604) will come loose.

The focusing unit can now be removed.

When mounting the new focusing unit the position is fixed, adjustments are not possible.

Kontrol af laserforsyning

Laseren, laserforsyningen i 30IC6101 og monitordioden danner et tilbagekoblings system. En fejl i laserforsyningen kan medføre at laseren ødelægges.
Hvis dette er tilfældet, og laseren (= komplet RAFOC enhed) udskiftes, vil den nye laser også ødelægges.

Da det er umuligt at kontrollere og reparere et tilbagekoblingssystem hvor en af komponenterne mangler, kan nedenstående kredsløb bruges til at kontrollere laserforsyningen.

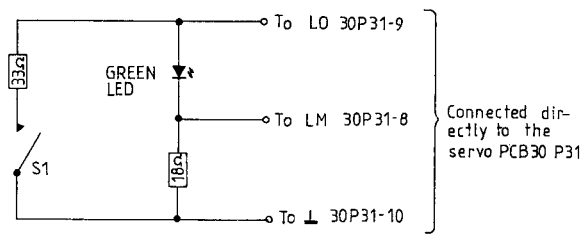
Den grønne LED udgør laseren. Spændingen over 18 ohms modstanden udgør monitor tilbagekoblings spændingen. 33 ohms modstanden og omskifteren gør det muligt at ændre strømforbruget fra laserforsyningen.

Check of laser supply

The laser and the laser supply in 30IC6101 plus the monitor diode form a feedback system. A defect in the laser supply may result in the destruction of the laser.
If, in that case, the laser (= complete RAFOC unit pos. no. 9605) is replaced, the new laser will also become defective.

However, it is impossible to check and repair a feedback system if a link is missing. For this reason the laser supply can be checked with the circuit below.

The green LED replaces the laser, the voltage across the 18-Ohm resistor is fed back as monitor voltage, the 33-Ohm resistor and the switch serve to draw more current from the laser supply.



Grøn LED f.eks. CQY94 bestillings. nr. 8330054.

Fleks printet tages ud af P31 på servo PCB'en.

Ovenstående kredsløb loddes på P31 på servo PCB'en.

$\overline{SI}$ (ben 20 på 30IC6101) kortsluttes til stel.

Når $\overline{SI}$ (Start initialization) er low, kan laserforsyningen tændes i service position 1, ved at kortslutte 36IC6078 ben 4 til stel, samtidig med netstikket sættes i. Tryk derefter ADVANCE.

LO spændingen på 30P31 ben 9 måles.

S1 afbrudt: LO fra 1,8 V til 2,3 V
LM fra 180 mV til 220 mV
Den grønne lysdiode lyser svagt.

S1 kortsluttet: LO fra 1,8 V til 2,3 V
LM fra 170 mV til 220 mV
Den grønne lysdiode lyser svagt.

Når S1 skiftes fra kortsluttet til afbrudt vil LED'en lyse kraftigere i et kort øjeblik. Tilbagekoblingssystemet bevirker at der går samme strøm i LED hvadenten S1 er kortsluttet eller afbrudt.

LED green e.g. CQY94 part no. 8330054.

Take the flex PCB out of P31 on the servo PCB.

Connect above mentioned circuit to P31 on the servo PCB.

Connect $\overline{SI}$ (pin 20 of 30IC6101) to ground.

With $\overline{SI}$ (start initialization) low, the laser supply can be switched on by short circuit pin 4 of 36IC6078 to ground, while plugging in the mains plug.
Then press ADVANCE.

Measure the voltage LO at 30P31 pin 9.

S1 open: LO from 1.8 V til 2.3 V
LM from 170 mV to 220 mV
The green LED emits little light.

S1 closed: LO from 1.8 V to 2.3 V
LM from 170 mV to 220 V
The green LED emits little light.

During the change over from S1 closed to S1 open, the LED will emit more light for a short moment. The control sees to it that the same amount of current flows through the LED when S1 is open and when S1 is closed.

Justering af laserstrøm

Bemærk! Ved udskiftning af RAFOC enheden (pos. nr. 9605) skal laser current potentiometeret (pos. nr. 30R3106) stilles i mekanisk midt position for at undgå beskadigelse af laseren.

Tilslut DC voltmeter over 30R3102.

Ilæg testplade nr. 5 (plade uden fejl, bestillingsnr. 3634031).

Sæt apparatet i serviceposition 2. (Kortslut 36IC6074 ben 4 til stel, samtidig med netstikket sættes i.
Tryk derefter ADVANCE 2 gange, (displayet skal vise F.2).

Juster 30R3106 indtil spændingen over 30R3102 er ca. 40 mV.
(Spændingen varierer hvis pladen roteres).

Gå ud af serviceposition 2 ved at afbryde netspændingen kortvarigt.

Afspil spor 1 på testplade 5.

30R3106 justeres indtil spændingen over 30R3102 er 50 mV ±5 mV.

Adjusting the laser current

Attention: When exchanging the RAFOC unit (pos. nr. 9605), the laser output potentiometer (pos. nr. 30R3106) should be placed in mechanical mid-position to avoid damage to the laser.

Connect CD voltmeter across 30R3102.

Put test disc no. 5 (disc without defects part no. 3634031) on the turntable.

Put the player in service position 2. (Short circuit pin 4 of 36IC6078 to ground, while plugging in the mains plug.
Then press ADVANCE twice, (display shall show F.2).

Adjust 30R3106 until the voltage across 30R3102 is about 40 mV.
(This voltage varies when the disc is rotated).

Leave service position 2 by switching of the mains briefly.

Play track 1 of test disc 5.

Adjust 30R3106 until the voltage across 30R3102 is 50 mV ±5 mV.

Kontrol af disc motor systemet

1. Afbryd Vc forbindelsen ved at lodde 30D6110 og 30D6111 fra.
2. Tilslut den ene kanal på et dobbelt stråle oscilloskop til emitteren på 96TR6082, og den anden kanal til emitteren på 96TR6084. Indstil oscilloskopet til 2V – 10 mS.
3. Sæt apparatet i serviceposition 1 ved at kortslutte ben 4 på 36IC6078 til stel, samtidig med netstikket sættes i.
   Tryk derefter ADVANCE 1 gang.
4. Tilslut en negativ DC spændingsforsyning (V-in) til 30P36-1. NB! Apparatet *skal* stå i service position 1 (strømforsyningen i apparatet skal være tændt) når dette gøres.

   Start fra 0 V og reguler DC forsyningen mod – indtil motoren kører (max. -5 V).

   Når motoren kører, ændres spændingen til -1,5 V.

   Motoren skal stadig køre.

Check of disc motor system

1. Interrupt the Vc connection by desoldering 30D6110 and 30D6111.
2. Connect channel A of a dual-beam oscilloscope to the emitter of transistor 96TR6082 on the motor PCB and channel B to the emitter of transistor 96TR6084. Position of the oscilloscope: 2 V/div – 10 ms/div.
3. Put the player in service position 1, by short circuit pin 4 of 36IC6078 to ground, while plugging in the mains plug.
   Then press ADVANCE once.
4. Inject a *negative* voltage (V-in) to pin 1 of 30P36. This voltage *may only* be injected *after* the player is put in service position 1. (The power supply in the player must be ON).

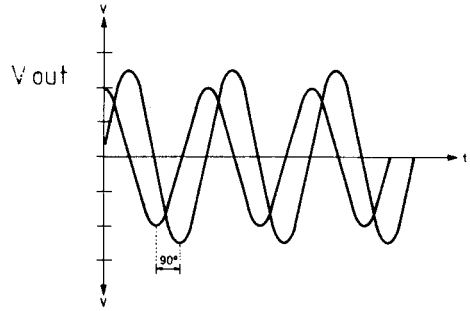
   Start from 0 V and lower this voltage fast until the motor is running (max. -5 V).

   When the motor is running, the voltage can be reduced to -1.5 V.

   The motor should keep on running.

5. Sinus signaler (V-out) skal nu være synlige på oscilloskopet. Efter ca. 2 sek. skal signalerne ligge symmetrisk omkring 0 V, og være 90° faseforskudt (se tegning).
Størrelsesforholdet mellem de 2 signaler må højst være 1:2.

5. Now sinusoidal signals (v-out) should be present on the oscilloscope (see figure) which, after about 2 seconds, lie symmetrically round the 0-axis and have shifted 90° in phase relative to one another. The amplitudes of these 2 signals have a maximum permissible ratio of 1:2.



6. Amplituden er afhængig af størrelsen af den tilførte DC spænding.
Forholdet V-in/V-outpp skal ligge mellem 1:2 og 1:3.

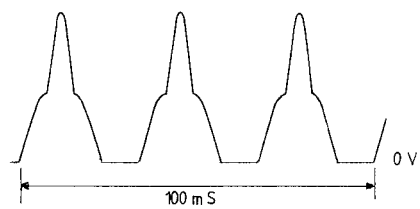
6. The amplitude is dependent on th injected voltage. The ratio V-in/V-outpp should lie between 1:2 and 1:3.

7. DC spændingsforsyningen (V-in) ændres indtil motoren kører 600 omdr. min. (V-out frekvens = 30 Hz).
V-in skal ligge mellem -1,5 V og -3,7 V med 600 omdr. min.

7. Now adjust V-in until the motor rotates 600 r.p.m. At 600 r.p.m. the frequency of V-out is 30 Hz. V-in should lie between -1.5 V and -3.7 V at this speed.

8. Mål med oscilloskop, først over 96R3094, og derefter over 96R3093 på disc motor control PCB'en. De 2 stråler på et dobbelt stråret oscillosckop *må ikke* tilsluttes over de 2 modstande samtidig, da forsyningsspændingerne ellers kortsluttes.
Spændingsforsyningen reguleres, indtil der ses 3 pulser med oscilloskopet på 100 mS. (se tegning).

8. Measure with an oscilloscope first across 96R3094 and hereafter across 96R3093 on the disc motor PCB. DO not measure across both resistors at the same time, as this will cause short circuit of the power supplies.
Now adjust the injected voltage in such a way that 3 complete pulses are visible during 100 mS. (See figure).



Oscilloskopet polariseres sådan, at pulserne vender som vist.

The polarity of the oscilloscope must be chosen so that the tops of the pulses are in upward position.

9. DC spændingsforsyningen reguleres til -1,7 V ±0,5 V på P36-1 på servo PCB'en.

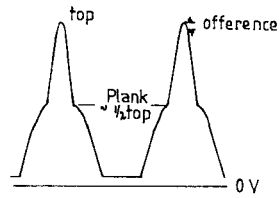
   Reference spænding over R3094 = 56,4 mVpp.
   Reference spænding over R3093 = 58,8 mVpp.
   Hvis forskellen på de 2 spændinger er større end 6 mV, når spændingerne er lavere end reference værdierne, er motoren defekt.

9. Adjust the injected voltage until -1.7 ±0.5 V are present on pin 1 of P36 on the servo PCB.

   Reference voltage across 96R3094 = 56.4 mVpp.
   Reference voltage across 96R3093 = 58.8 mVpp.
   If the difference of the 2 voltages exceeds 6 mV, while the voltages are below the reference values, the motor is defect.

10

10

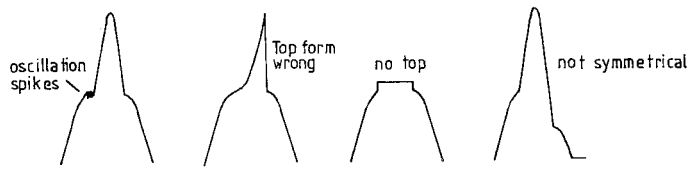


Toppen må højest variere 24 mV i amplitude.
Flanken må højest variere 36 mV i amplituden.

Top difference must not exceed 24 mVpp amplitude.
Flank difference must not exceed 36 mVpp amplitude.

11. Eksempler på pulsformer som er udtryk for fejl i disc motor systemet.

11. Examples of wave forms when the disc motor system is faulty.



12. DC spændingsforsyningen reguleres til -1,5 V på P36-1 på servo PCB'en.
    Motoren skal stadig køre.
    Pulsens amplitude falder, men pulsformen skal stadig være symmetrisk og afrundet.

12. Adjust the injected voltage until -1.5 V are present on pin 1 of P36 on the servo PCB.
    The motor should keep on running
    The amplitude of the pulse will be lower, but the wave form has to be symmetrical and rounded.

Konklusion:
Hvis ovennævnte punkter kan opfyldes, er disc motor systemet i orden.

Conclusion:
When all above mentioned conditions are fulfilled it may be assumed that the disc motor system is all right.

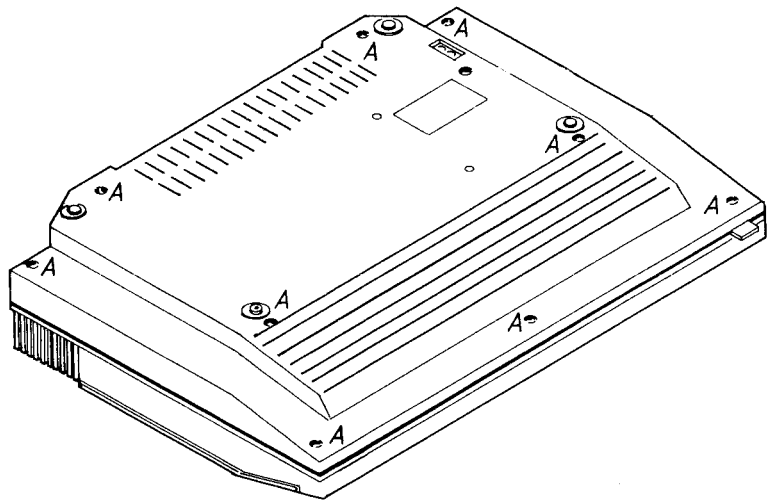
Bang&Olufsen

ADSKILLELSE

Bund

DISMANTLING

Bottom

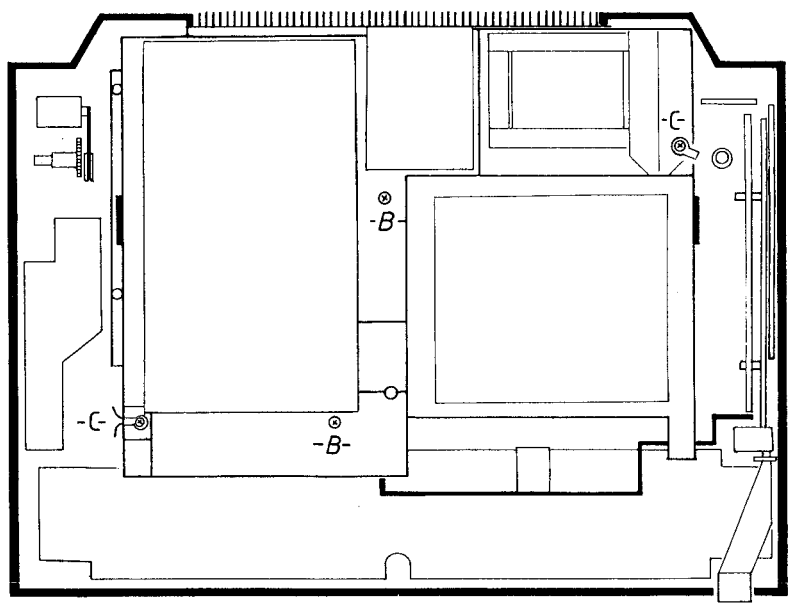


Fjern skruerne A.

Fjern transportskruerne.

Remove the transport screws.

Remove the screws A.



Topplade

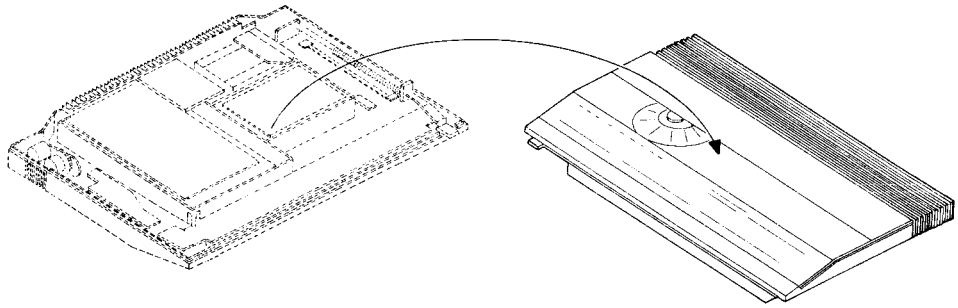
Fjern de to skruer B.

Fjern de to jordforbindelser C.

Top plate

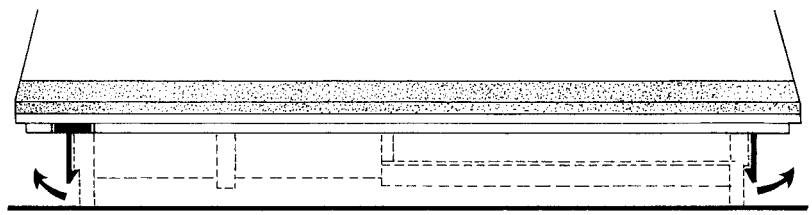
Remove the two screws B.

Remove the two ground connections C.



Vend enheden om. Hold fast ved stelrammen.

Turn over the set while supporting the chassis frame.



Vip de to plasttappe udad.

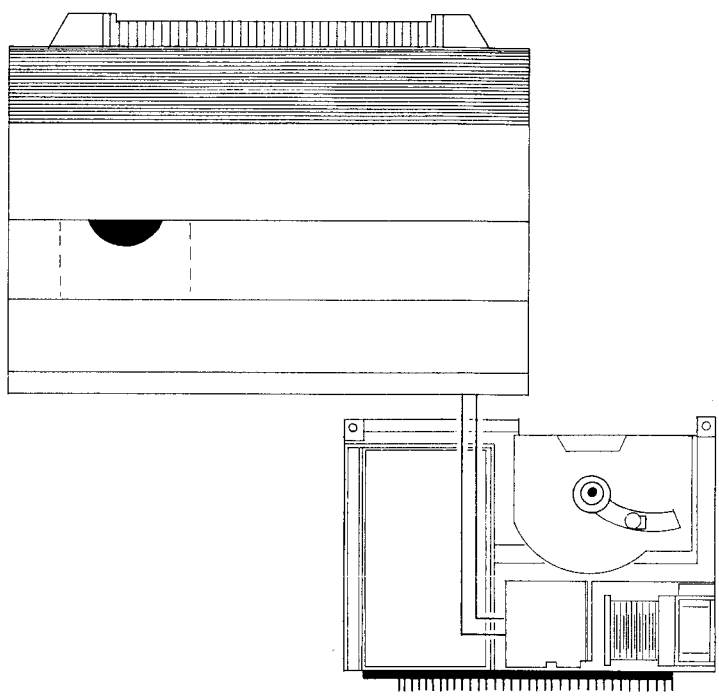
Løft forsigtigt toppladen af.

NB! Vær opmærksom på kabelforbindelsen mellem toppladen og stelrammen.

Tip out the two plastic tags.

Carefully lift off the top plate.

NB! Be aware of the cable connection between the top plate and the chassis frame.

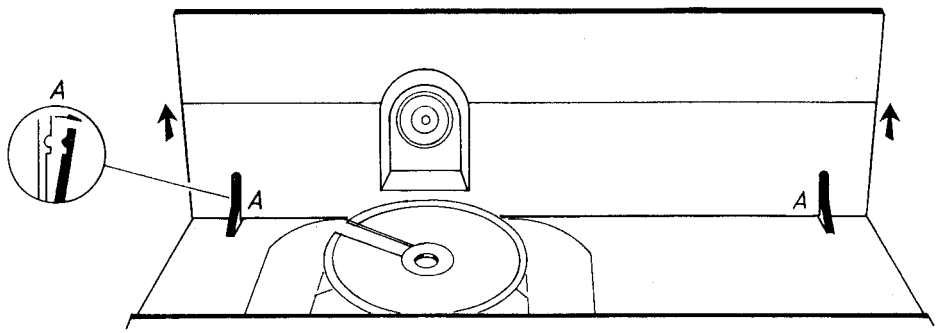


Stil toppladen foran stelrammen som vist.

Place the top plate in front of the chassis frame as illustrated.

Udskiftning af støvlåg

Replacement of dust cover



Vip hængslerne A i begge sider udad som vist.

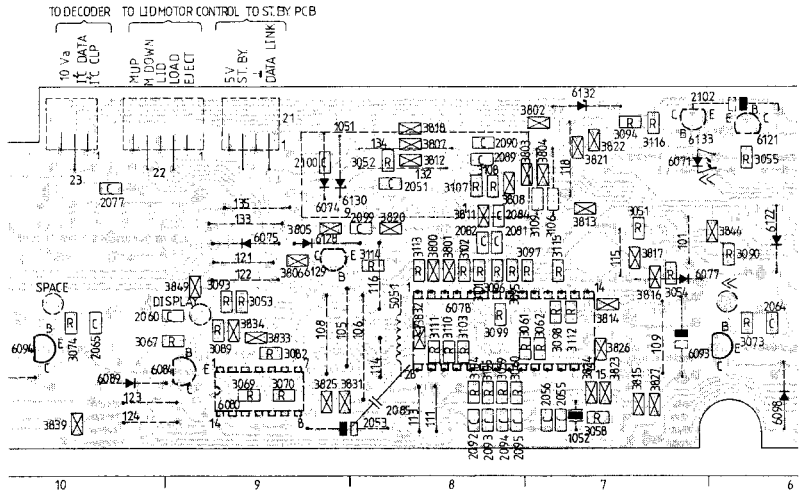
Støvlåget kan nu skubbes opad.

Tip out the hinges A in both sides as illustrated.

The dust cover may now be pushed upwards.

SERVICETIPS
Serviceprogram
Kortslut 36IC6078 ben 4 til stel, samtidig med at netstikket sættes i.

SERVICE TIPS
Service program
Short-circuit 36IC6078 pin 4 to chassis and plug into mains supply at the same time.



Tast ADVANCE Press ADVANCE	Display indikerer serviceposition 1. Display indicates service position 1.	
Tast >> Press >>	Laserarm svinger ud. Laser arm swings out.	*Hvis arm bliver stående:* Er fleks-PCB rigtigt placeret? Går radialspole imod? Er trægheden i armlejet for stor? *If arm doesn't move:* Is flex-PCB placed correctly? Does radial coil touch? Is arm bearing inertia excessive?
Tast << Press <<	Laserarm svinger ind. Laser arm swings in.	*Hvis arm bliver stående:* Er fleks-PCB rigtig placeret? Går radialspole imod? Er trægheden i armlejet for stor? *If arm doesn't move:* Is flex-PCB placed correctly? Does radial coil touch? Is arm bearing inertia excessive?
Ilæg CD-plade Load compact disc		
Tast ADVANCE	Display indikerer F.2. Laser tænder og søger focus. Hvis display indikerer 02: Focussøging i orden.	*Hvis display forbliver i F.2.:* CD bliver ved med at søge i focus, indtil der tastes ADVANCE. Tændes laser? Regulerer FE-udgangen til focus motoramplifier? Regulerer focusmorot?

Press ADVANCE	Display indicates F.2. Laser switches on and searches for focus If display indicates 02: Focus search is OK.	*If display remains in F.2.:* CD continues searching for focus until ADVANCE is pressed. Does laser switch on? Does FE output controlling focus motor amplifier regulate? Does focus motor regulate?
Tast ADVANCE	Display indikerer .3. CD-motor starter rotation og laser placeres mod centrum.	*Hvis CD-plade ikke roterer:* Starter RD-udgangen turntable motoramplifier? Er MCES-pulsen tilstede?
Press ADVANCE	Display indicates .3. CD motor starts rotation, and the laser is positioned towards the centre.	*If compact disc doesn't rotate:* Does RD output start the turntable motor amplifier? Is MCES pulse present?
Tast ADVANCE	Display indikerer .4. Radialsøgning startes. Hvis display indikerer 0.4. Radial søgning i orden.	*Hvis display indikerer F.4:* Regulerer RE-udgangen til radial motoramplifier? Subcode info er ignoreret. Musik kan høres, fordi MUSB er høj men er afhægig af lead-in sporets længde. Kan vare op til 1 min.
Press ADVANCE	Display indicates .4. Radial search is started. If display indicates 0.4. Radial search is OK.	*If display indicates F.4:* Does RE output controlling radial motor amplifier regulate? Subcode info has been ignored. Music is audible because MUSB is high but dependet on length of lead-in track. May last up to 1 minute.
Tast >>	Display forbliver i 0.4. Laserarm springer frem over 64 spor.	*Hvis display indikerer F.4.:* Kontroller radialservo.
Press >>	Display remains in 0.4. Laser arm jumps forward across 64 tracks.	*If display indicates F.4.:* Check radial servo.
Tast <<	Display forbliver i 0.4. Laserarm springer tilbage over 64 spor.	*Hvis display indikerer F.4.:* Kontroller radialservo.
Press <<	Display remains in 0.4. Laser arm jumps backward across 64 tracks.	*If display indicates F.4.:* Check radial servo.

Serviceprogrammet kan gentages ved at taste ADVANCE en gang. Displayet indikerer da kort efter serviceposition .1.
Serviceprogrammet afsluttes ved kortvarigt at fjerne netstikket.

The service program can be repeated by pressing ADVANCE once. The display will shortly afterwards indicate service position .1.
The service program is terminated by briefly disconnecting the mains supply.

Oversigt over IC ben

Nedenstående skemaer er en kort beskrivelse af funktionen af de vigtigste ben på servo og decoder IC'erne.
De steder hvor 2 IC'er har direkte forbindelse med hinanden, er der kun nævnt benet på den ene IC.

IC pin survey

The following surveys shortly describes the function of the most important pins of the servo and decoder IC's.
Where 2 IC's are directly connected only one pin is mentioned.

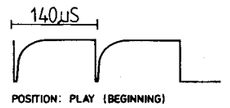
31IC6301

PIN	BEMÆRKNINGER/REMARKS	PLAY POSITION	SERVICE POSITION 1	SERVICE POSITION 2	SERVICE POSITION 3	SERVICE POSITION 4	SEARCH POSITION
21	$\overline{SI}$ (Start Initialization). Når $\overline{SI}$ er »low«, er laserforsyningen og focus styring tændt. When $\overline{SI}$ is 'low' the laser supply and the focus control are switched on.	»Low«	»High«	»Low«	»Low«	»Low«	»Low«
7	RD (Ready). Med plade på pladeholderen vil RD gå »high« når focuspunktet er fundet. With a disc on the turntable, RD goes 'high', when the focal point has been found.	»High«	»Low«	»High«	»High«	»High«	»High«
20	$\overline{SSM}$ (Motor Start-Stop signal). Når RD er gået »high«, vil $\overline{SSM}$ være »high« i et kort øjeblik (<0,2 sek.), og discmotor forstærkeren tændes (styret af MCES signalet). When, after RD 'high', the $\overline{SSM}$ is high for a short moment (<0.2 sec.), the disc motor amplifier will be switched on (controlled by the MCES signal).	136 µS	»Low«	»Low«	136 µS	136 µS	136 µS
8	B0 Tænder radial kontrol. Styrer niveauet på radial servo DAC udgang. I søge position vil der være aktivitet på alle 4 udgange.	»High«	»Low«	»Low«	»Low«	»High«	»Activity«
9	B1	»High«	»High«	»High«	»High«	»High«	»Activity«
10	B2 Switches the radial control on. Controls the level on the radial servo DAC output. In search mode, there should be activity on all 4 pins.	»High«	»High«	»High«	»High«	»High«	»Activity«
11	B3	»Low«	»Low«	»Low«	»Low«	»Low«	»Activity«
12	$\overline{TL}$ (Track Loss). $\overline{TL}$ giver information til 31IC6301 om at tab af spor kan være forestående. 31IC6301 kan så give korrektionssignaler med B0-B3. $\overline{TL}$ tells 31IC6301 that track loss treatens. 31IC6301 can give correction signals with B0-B3	»High«	»High«	»Low«	»Activity«	»High«	»Activity«
13	RP (Radial Position). RP bestemmer laserarmens position i forhold til sporet, og korrigerer ved spring over spor og ved mekaniske stød mod apparatet. RP determines the position of the arm relative to the track and to check/correct in case of track jumping or bumping against the player				»Activity«		»Activity«
22	$\overline{DODS}$ (Drop Out Detector Suppression). Når $\overline{DODS}$ er »low«, har drop out signaler ingen indflydelse på styringen af laserarmen under søg. When $\overline{DODS}$ is 'low' drop out signals do not influence on the arm control during track jumping.	»High«	»Low«	»Low«	»Low«	»High«	»Activity«
6	$\overline{RPU}$ (Radial Pulse). $\overline{RPU}$ aflader 30C2156 under søg. 30IC2156 virker som hukommelse for stigningsgraden på pladen. During search, $\overline{RPU}$ clears 30C2156. 30C2156 memorizes the degree of inclination of the disc.	»High«				»High«	»Activity« 0.1 mS/ Div.

31IC6302

PIN	BEMÆRKNINGER/REMARKS	PLAY POSITION	SERVICE POSITION 1	SERVICE POSITION 2	SERVICE POSITION 3	SERVICE POSITION 4	SEARCH POSITION
17	MCES (Motor Control). MCES styrer discmotorens hastighed. MCES controlls the turntable motor speed.	A_1/A_2	A_2	A_2	A_1/A_2	A_1/A_2	A_1/A_2
25	HF (High Frequency). Indgang for HF øje mønster. *Efter lead-in er læst HF eye pattern input. *After lead-in has been read.	B (Stable)			B (Unstable)	B* (Stable)	»Activity«
26	HFD (High Frequency Detector). HFD vil gå »low« når HF signalet er for svagt. *Ved afspilning af testplade 5A, vil HFD give »low« pulser på spor med afbrydelser og sorte pletter. HFD will go 'low' when the HF signal is too low. *When playing test disc 5A, track numbers with interruption or black dot, HFD will make low pulses.	»High«*				»High«	»Activity«
27	CEFM. Spændings kontrolleret oscillator udgang. *Hvis pladen bremses forsigtigt med hånden, vil oscillator frekvensen falde. CEFM. Voltage controlled oscillator output. *When the disc is slowly bracked by hand, the oscillator will lower its frequency.	4.32 MHz*	2.82 MHz	2.82 MHz	4.32 MHz*	4.32 MHz*	4.32 MHz
39	WS (Word Select)	D			D	D	D
38	Clock	D			D	D	D
37	Data	»Activity«				»Activity«	»Activity«
36	E Flag (Error Flag). Indikerer utroværdige samples for 8 sample interpolator. Indicates untrustworty samples for 8 sample interpolator.						»Activity«
30 31 29	QRA (Q-channel Request Acknowledge. QCL (Q Clock) QData QRA initieres af 31IC6301 med »high«, 31IC6302 svarer med »low«. Ved forkanten på næste clock puls sættes QRA »high« igen af 31IC6301. Når 31IC6301 har modtaget nok information (via Q Data), går QRA »low«. Dette gør at QRA tiden varierer. QRA is initiated by 31IC6301 with 'high', 31IC6302 answers with 'low'. With the next leading clock (Q CL) the QRA is set 'high' again by 31IC6301. When 31IC6301 has taken enough information (via Q Data), QRA will go 'low'. This makes the QRA times vary each time.	F F F				F F F	
33 35 34	SW (Subcode Word clock). SC (Subcode Clock). SD (Subcode DATA) Efter Motor Start Pulse vil Subcode Word Clock være synlig. Medens en burst på 10 clock pulse er synlig på SC, overføres Q-channel information på SD. Herefter følger P-bit indikation. P-bit indikationen kommer mellem 2 bursts på 10 clock pulser. Ved pause er P-bit indikationen »high« og ved musik er den »low«. After Motor Start Pulse, Subcode Word Clock is visible. While the burst of 10 clock pulses appear on SC, the Q-channel information is transferred on SD. Hereafter the P-bit indication follows. The P-bit is 'high' between two bursts of 10 clock pulses in case of pause indication, and 'low' in case of music indication.	G			G	G	

A1



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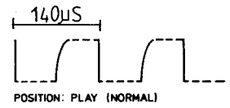

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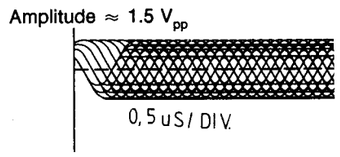

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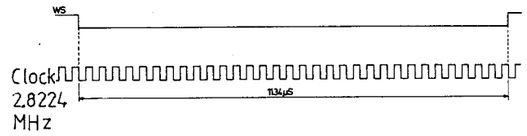

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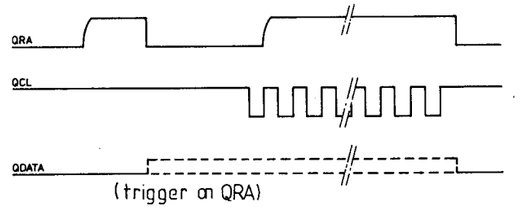
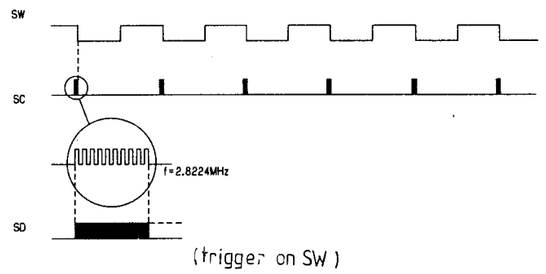


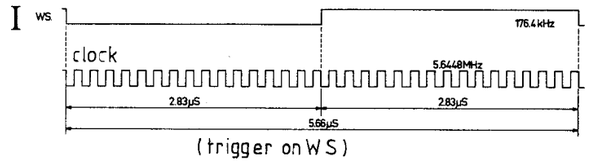
G



PIN	BEMÆRKNINGER/REMARKS	PLAY POSITION	SERVICE POSITION 1	SERVICE POSITION 2	SERVICE POSITION 3	SERVICE POSITION 4	SEARCH POSITION
28	$\overline{CRI}$ (Counter Reset Inhibit). $\overline{CRI}$ er »low« ved spring over spor. $\overline{CRI}$ is 'low' in case of track jumping.	»High«				»High«	»Activity«
32	$\overline{DEEM}$ (Deemphassis). »Low« ved afspilning af testplade 5A spor 14. »High« ved afspilning af testplade 5A spor 15. 'Low' when playing test disc 5 track no. 14 'High' when playing test disc 5 track no. 15						
19	OSC. Indgang fra krystal oscillator. Input from crystal oscillator	11.28 MHz	11.28 MHz			11.28 MHz	
11	$\overline{MUTE}$. Muter audio signalet Mutes the audio signal	»High«				»High«	»High«

31IC6304

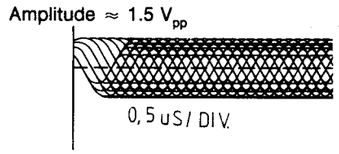
PIN	BEMÆRKNINGER/REMARKS	PLAY POSITION	SERVICE POSITION 1	SERVICE POSITION 2	SERVICE POSITION 3	SERVICE POSITION 4	SEARCH POSITION
18	WS (Word Select)	I	I	I	I	I	I
16	Clock						
15	Data	»Activity«	»Stable«	»Stable«	»Stable«	»Activity«	»Activity«
22	$\overline{ATSB}$ (Attenuation Audio Signal). Ved »low« dæmpes signalet 12 dB. When 'low', the signal is lowered with 12 dB						
23	$\overline{MUSB}$ (Soft Mute). $\overline{MUSB}$ er »low« ved spring fra et spor til et andet. *Vil være »high« ved søgning i serviceposition 4. $\overline{MUSB}$ is 'low' when jumping from one track to another. *Will be 'high' when using search in service position 4.	»High«				»High«	*»Low«



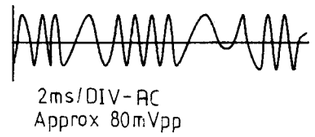
30IC6101

PIN	BEMÆRKNINGER/REMARKS	PLAY POSITION	SERVICE POSITION 1	SERVICE POSITION 2	SERVICE POSITION 3	SERVICE POSITION 4	SEARCH POSITION
17	LO (Laser Out).	»High«	»Low«	»High«	»High«	»High«	»High«
16	LM (Laser Monitor) Via LM styres strømforsyningen til laser dioden. Via the LM the power supply for the laser diode is controlled.	200 mV ±50 mV		200 mV ±50 mV			
5	FE (Focus Error). FE styrer focus enheden. Når $\overline{SI}$ går »high« søges der efter focus punktet. Når apparatet sættes i serviceposition 2 uden plade, vil optikket søge efter focus punktet. På ben 5 vil FE signalet variere mellem 0 V og +4 V. FE drives the focusing unit. When the $\overline{SI}$ goes 'high', the focal point will be searched for. When the player is brought into servicing position 2 without disc, the objective will search for the focal point. At pin 5 the FE signal varies between 0 V and +4 V.						
9 10 8 7	D1 D1→D4 er korrektionssignaler for fotodiode kredsløbet. Hvis pladen bevæges når apparatet er i serviceposition 2, skal focusenheden holde focus. D2 Når pladen bevæges, skal der være varierende signaler på ben 7, 8, 9 og 10. D3 D1→D4 are the error signals from the photodetector circuits. When in servicing position 2 the disc is moved, the focusing unit should keep the laser D4 beam in focus. When the disc is moving, there should be a changing signal on pin 7, 8, 9, 10.						
3	HF (High Frequency). HF information fra de 4 fotodioder. HF information from the 4 photodiodes.						
27	HF out (High Frequency out). HF out er et forstærket informationssignal til decoderen. *Efter lead-in er læst. HF out is the amplified information signal for the decoder. *After lead-in has been read.	B (Stable)			B (Unstable)	B* (Stable)	
26 19 18	DET (Detector). HFD (High Frequency DETECTOR). $\overline{TL}$ (Track Loss). DET giver information om HF signalets niveau til niveau/drop-out detektoren i 30IC6101. Når HF signalets niveau er for lavt, vil HFD gå »low«. $\overline{TL}$ vil så gå »low« som information til 31IC6301 om at sporings signalerne er upålidelige. DET gives information on the level of the HF signal to the level/drop-out detector in 30IC6101. When the level of the HF signal is too low, HFD will go 'low'. $\overline{TL}$ will then go 'low' in order to tell 31IC6301 that the tracking signals are unreliable.						
11 12	RE1 (Radial Error). RE1-2 er styresignaler til sporing af laseren. RE2 RE1-2 are the control signals for the arm during tracking.					J	
25	SC (Start Capacitor). *Stiger til +5 V hvis focus punktet er fundet. *Rises to +5 V if focus point is found.		-5 V	*	+5 V	+5 V	
6	FE lag (Focus Error). *Når pladen bevæges, vil signalet variere. *When the disc is moved by hand, the signal will vary.			*	Approx. 100 mVpp		
13	AGC. *Ved maksimum HF signal ≦-400 mV. Ved ingen HF signal +5 V. *At maximum HF signal ≦-400 mV. At no HF signal +5 V.	*	»High«	»High«	*	*	

B



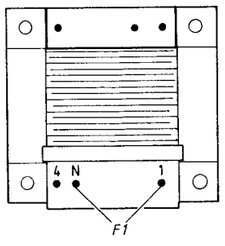
J

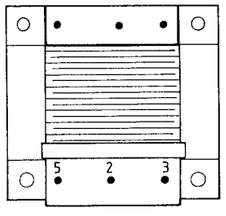


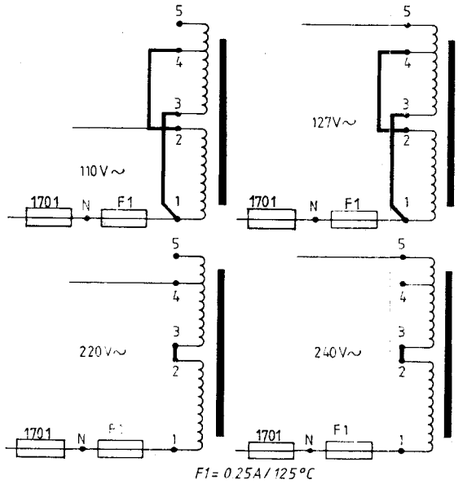
30IC6102

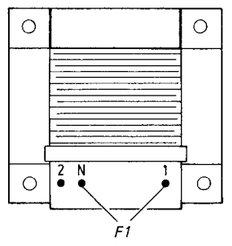
PIN	BEMÆRKNINGER/REMARKS	PLAY POSITION	SERVICE POSITION 1	SERVICE POSITION 2	SERVICE POSITION 3	SERVICE POSITION 4	SEARCH POSITION
10	DAC (Digital to Analogue Converter). DAC styrer hastigheden på spring over spor. Signalet er genereret af B0-B3. *Når man banker forsigtigt på apparatet vil der være aktivitet. DAC controls the track jumping speed. The signal is derived from the signals B0-B3. *Knock carefully on the set, and there should be activity.	*			»Low«	*	»Activity«
7	RE (Radial Error). RE holder lyspletten på sporet. *En 650 Hz sinus vil være synlig i RE signalet. RE keeps the light spot on track. *A 650 Hz sine wave should be visible in the RE signal.	*				*	
8	RE lag (Radial error for lag network). 30C2156 i RE lag kredsløbet har en hukommelsesfunktion. Den husker stigningsgraden på pladen. Når der springes til et givet spor på pladen, skal denne hukommelse tømmes. De gøres med 31IC6301 via 30TR6109. *En 650 Hz sinus vil være synlig i RE lag signalet. 30C2156 in the RE lag circuit has a memory function. It memorizes the degree of inclination on the disc. When a jump is made to a certain track on the disc, the memory should be cleared. This is done by 31IC6301 via 30TR6109. *A 650 Hz sine wave should be visible in the RE lag signal.	*				*	
4	D factor. (Offset control). Typical 0V	Min.Gain -2.5V	+4		-0.5V	-1V/-1.5V	
5	K factor. (Gain control). Typical -1V/-1.5V	Max.Gain -0.5V					

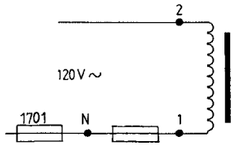
LEDNINGSFORBINDELSER PÅ NETTRANSFORMATOR
MAINS TRANSFORMER WIRING











8-1

8-1

ISOLATIONSTEST

Ethvert apparat **skal** isolationstestes efter at det har været adskilt. Testen udføres når apparatet igen er helt samlet og klar til udlevering til kunden.

Isolationstesten udføres på følgende måde:
De to stikben på netstikket kortsluttes og tilsluttes en af terminalerne på isolationstesteren. Den anden terminal fra isolationstesteren tilsluttes en af de to skruer, der er placeret på kølepladen på bagsiden af apparatet.

OBS!

For at undgå beskadigelser på apparatet er det vigtigt, at begge terminaler fra isolationstesteren har virkelig god mekanisk kontakt.
Der drejes nu langsomt med spændingsreguleringen på isolationstesteren indtil en spænding på 1,5-2 kV er opnået. Her skal den holdes i 1 sekund, derefter drejes der langsomt ned for spændingen igen.

Der må ikke på noget tidspunkt under testen forekomme overslag.

INSULATION TEST

Each set **must** be insulation tested after having been dismantled. The test is to be made when the record player has been reassembeld completely and is ready for delivery to the customer (with the transis screws tightened).

Make the insulation test as follows:
Short-circuit the two pins of the mains plug and connect one of the terminals of the insulation tester.
Connect the other terminal of the insulation tester to one of the two screws placed on the heat sink on the back of the unit.

NOTE!

To avoid ruining the set it is essential that both insulation tester terminals are in really good mechanical contact.
Now slowly turn the voltage control of the insulation tester until a voltage of 1.5-2 kV is obtained. Hold it there for 1 second, then turn the voltage down again.

At no point during the testing procedure any flashovers are permissible.

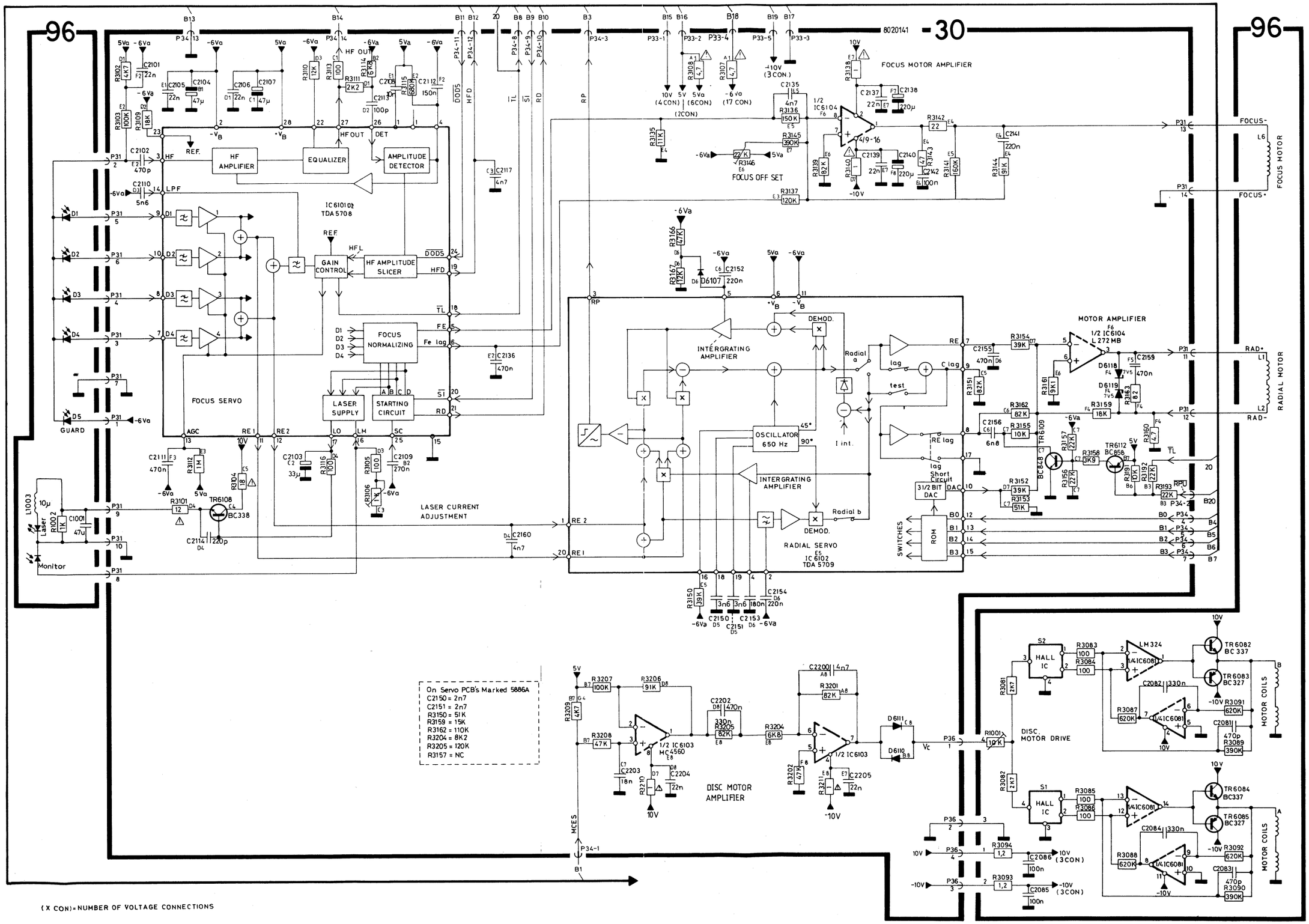
Bang & Olufsen

Beogram CD 3300

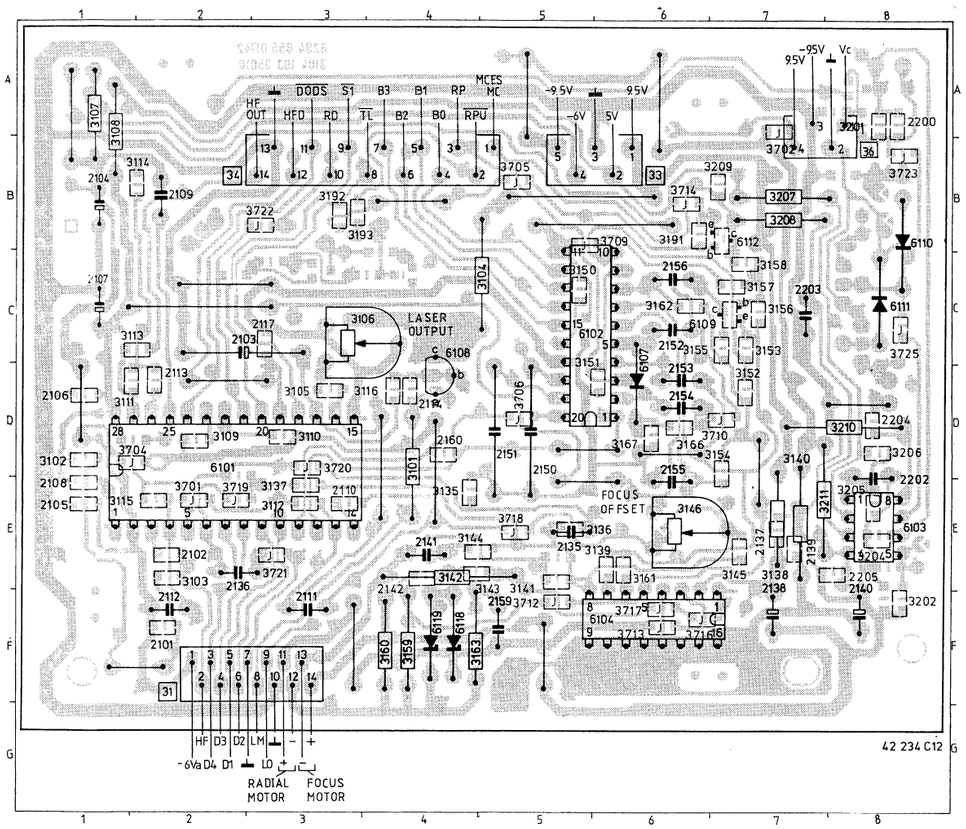
Diagram, PCB drawing and partlist for servo PCB 30 with focus off-set adjustment

Paste into Service Manual Beogram CD 3300, type 514x
In Serviceanleitung Beogram CD 3300, Typ 514x einkleben
A coller le Manuel D'entretien pour Beogram CD 3300, type 514x

DIAGRAM A (Servo and Disc Motor System)

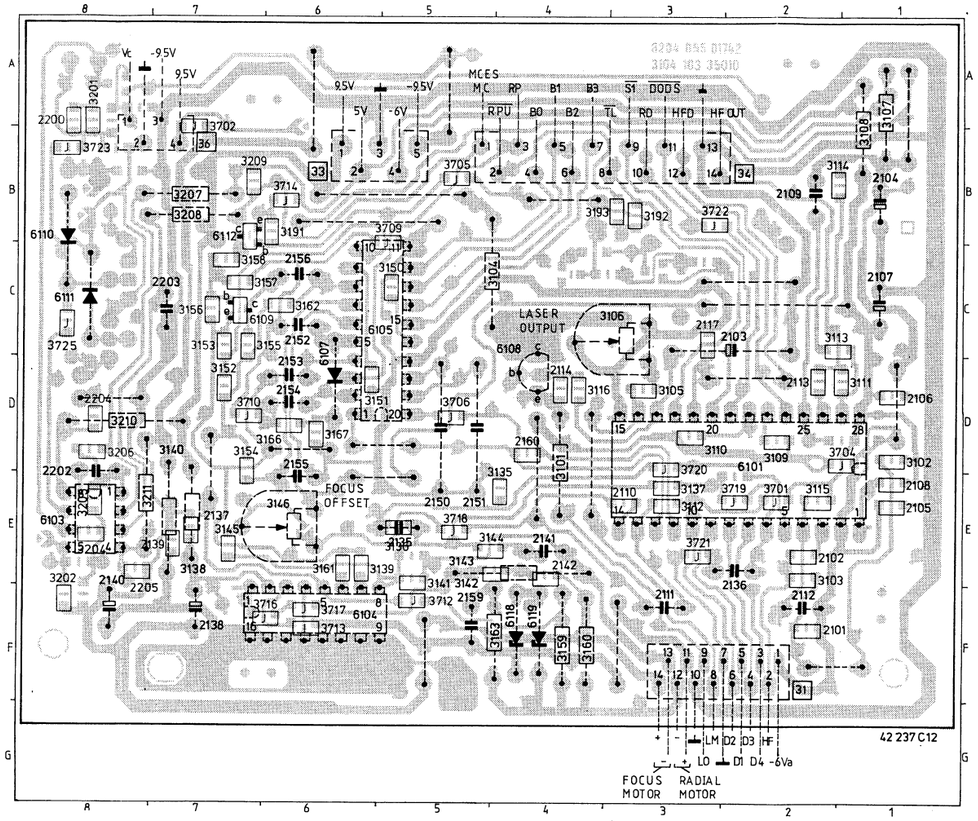


SERVO PCB 30



9-2

SERVO PCB 30

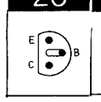
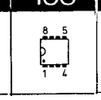
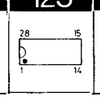
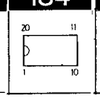
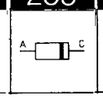


9-2

9-3

LIST OF ELECTRICAL PARTS

PCB 30, 8420141
Servo and Mechanism

20	51	103	125	134	209		
							

IC6101△	8340991	**125** TDA 5708 C3	IC6103	8340993	**103** NJM 4560D
IC6102△	8340992	**134** TDA 5709	IC6104	8340683	**103** L 272BH
TR6108	8320721	**020** BC 338-16	TR6112	8320616	**051** BC 858B
TR6109	8320615	**051** BC 848B			
D6107	8300058	**209** 1N 4148	D6118-D6119	8300570	**209** HZ 7C2 7V5
D6110-D6111	8300058	**209** 1N 4148			
R3101	5020966	12 Ω 5% 1/3W	R3151	5011254	82 kΩ 2% 1/8W
R3102	5011234	4.7 kΩ 2% 1/8W	R3152	5011314	39 kΩ 5% 1/8W
R3103	5011256	100 kΩ 2% 1/8W	R3154	5011491	39 kΩ 2% 1/8W
R3104	5020967	18 Ω 5% 1/3W	R3155	5011241	10 kΩ 2% 1/8W
R3105	5011218	100 Ω 2% 1/8W	R3156-R3157	5011245	22 kΩ 2% 1/8W
R3106	5370355	1 kΩ 20%	R3158	5011233	39 kΩ 2% 1/8W
R3107-R3108	5020965	4.7 Ω 2% 1/3W	R3159	5010547	18 kΩ 2% 1/4W
R3109	5011244	18 kΩ 2% 1/8W	R3160	5020971	4.7 Ω 1% 1/4W
R3110	5011490	12 kΩ 2% 1/8W	R3161	5011490	12 kΩ 2% 1/8W
R3111	5011230	2.2 kΩ 2% 1/8W	R3162	5011254	82 kΩ 2% 1/8W
R3112	5011267	1 mΩ 2% 1/8W	R3163	5010056	82 Ω 5% 1/4W
R3113	5011218	100 Ω 2% 1/8W	R3166	5011250	47 kΩ 2% 1/8W
R3114	5011238	6.8 kΩ 2% 1/8W	R3167	5011490	12 kΩ 2% 1/8W
R3115	5011319	680 kΩ 5% 1/8W	R3191	5011241	10 kΩ 2% 1/8W
R3116	5011218	100 Ω 2% 1/8W	R3192-R3193	5011245	22 kΩ 2% 1/8W
R3135	5011586	11 kΩ 2% 1/8W	R3201	5011254	82 kΩ 2% 1/8W
R3136	5011259	150 kΩ 2% 1/8W	R3202	5011250	47 kΩ 2% 1/8W
R3137	5011257	120 kΩ 2% 1/8W	R3204	5011238	6.8 kΩ 2% 1/8W
R3138	5020964	1.0 Ω 2% 1/3W	R3205	5011254	82 kΩ 2% 1/8W
R3139	5011254	82 kΩ 2% 1/8W	R3206	5011255	91 kΩ 2% 1/8W
R3140	5020964	1.0 Ω 2% 1/3W	R3207	5020263	100 kΩ 1% 1/4W
R3141	5011587	160 kΩ 2%	R3208	5020969	47 kΩ 1% 1/4W
R3143	5011269	47 Ω 2% 1/8W	R3209	5011234	4.7 kΩ 2% 1/8W
R3144	5011255	91 kΩ 2% 1/8W	R3210-R3211	5020964	1.0 Ω 2% 1/3W
R3145	5011318	390 kΩ 5% 1/8W			
R3146	5370254	22 kΩ 20% o.1W			
R3150	5011491	39 kΩ 2% 1/8W			
C2101	4000255	22 nF 10% 50V	C2139	4000255	22 nF 10% 50V
C2102	4000249	470 pF 5% 50V	C2140	4200745	220 mF 16V
C2103	4200414	33 mF -10+50% 16V	C2141	4130245	220 nF 5% 63V
C2104	4200482	47 mF 20% 10V	C2142	4000256	100 nf 10% 50V
C2105-C2106	4000255	22 nF 10% 50V	C2150-C2151	4130424	3.6 nF 160V 1%
C2107	4200482	47 mF 20% 10V	C2152	4130206	220 nF 10% 100V
C2108	4000254	10 nF 10% 50V	C2153	4130314	180 nF 10% 63V
C2109	4130379	270 nF 5% 63V	C2154	4130206	220 nF 10% 100V
C2110	4000253	5.6 nF 10% 50V	C2155	4130405	470 nF 10% 50V
C2111	4130405	470 nF 10% 50V	C2156	4130338	6.8 nF 5% 100V
C2112	4130406	150 nF 5% 50V	C2159	4130293	470 nF 10% 63V
C2113	4000248	100 pF 5% 50V	C2160	4010173	4.7 nF 10% 50V
C2114	4000233	220 pF 5% 50V	C2200	4010173	4.7 nF 10% 50V
C2117	4010173	4.7 nF 10% 50V	C2202	4130405	470 nF 10% 50V
C2135	4130370	4.7 nF 5%	C2203	4130221	18 nF 5% 63V
C2136	4130405	470 nF 10% 50V	C2204-C2205	4000255	22 nF 10% 50V
C2137	4000255	22 nF 10% 50V			
C2138	4200745	220 mF 16V			
P31	7210614	Socket 14 pol	P34	7220657	Plug 14 pol
P33	7220652	Plug 5 pol	P36	7220651	Plug 4 pol
To P5	6275746	Wire w/sokets 5/5 pin	To P6	6275745	Wire w/sokets 14/14 pin

△ betyder at statisk elektricitet kan ødelægge komponenten.
△ indicates that static electricity may destroy the component.
△ bedeutet, daß statische Elektrizität die Komponente zerstören kann.
△ signifi que électricité statique peut detruire le composant.

9-3

Justering af Focus offset (er ikke muligt i de først producerede apparater).

Ilæg testplade 5A (bestillingsnr. 3634031).

Sæt apparatet i serviceposition 2 ved at kortslutte ben 4 på 36IC6078 til stel samtidig med at netstikket sættes i.

Tryk derefter »ADVANCE« 2 gange.

Hvis displayet bliver ved med at vise »F2«, justeres 30R3146 til displayet viser »02«.

Sæt apparatet i serviceposition 4 ved at trykke »ADVANCE« 2 gange (».4« i displayet skal lyse, og pladen skal rotere).

Tilslut DC voltmeter over 30C2136.

Juster 30R3146 til der måles 400 mV ±40 mV.

Adjustment of DC focus offset (not possible in the first productions of the unit).

Load test disc 5A (order no. 3634031).

Set unit to service position 2 by short-circuiting pin 4 on 36IC6078 to chassis while inserting the mains plug.

Then press "ADVANCE" twice.

If the "F2" on the display keeps flashing, adjust 30R3146 until the display shows "02".

Set the unit to service position 4 by pressing "ADVANCE" twice. (".4" on the display should light and the disc rotate).

Connect DC voltmeter across 30R2136.

Adjust 30R3146 until the reading is 400 mV ±40 mV.

Justierung der Gleichstrom-Fokusfehlverschiebung (in den ersten Produktionen des Gerätes nicht vorhanden)

Die Testplatte 5A einlegen (Bestell-Nr. 3634031).

Das Gerät durch Kurzschließen des Steckers 4 auf 36IC6078 zum Chassis bei gleichzeitigem Einstecken des Netzsteckers in Service-Position 2 bringen.

Anschließend zweimal „ADVANCE" drücken.

Wenn „F2" im Anzeigefeld weiterhin blinkt, 30R3146 einstellen, bis „02" aufleuchtet.

Das Gerät durch zweimeliges Drüken von „ADVANCE" in Service-Position 4 bringen. („.4" im Anzeigefeld muß aufleuchten und die Platte rotieren).

Über 30C2136 Gleichstrom-Spannungsmesser anschließen.

30R3146 einstellen, bis 400 mV ±40 mV abgelesen werden können.

Réglage de l'erreur de concentration cc (cette possibilité n'existe pas dans les premiéres productions de l'appareil).

Introduire le disque d'essai 5A (no. de commande 3634031).

Mettre l'appareil en position de maintenance 2 en courtcircuitant la fiche 4 de 36IC6078 pour châssis et enficher simultanément la fiche secteur.

Appuyer ensuite deux fois sur «ADVANCE».

Si le «F2» du visuel continue de clignoter, régler 30R3146 jusqu'a ce que le «02» émette une lumiére continue.

Mettre l'appareil en position de maintenance 4 en appuyant deux fois sur «ADVANCE». (Le «.4» du visuel doit s'allumer et le disque doit tourner).

Raccorder le voltmétre cc sur 30C2136.

Régler 30R3146 jusqu'à obtenir une lecture de 400 mV ±40 mV.

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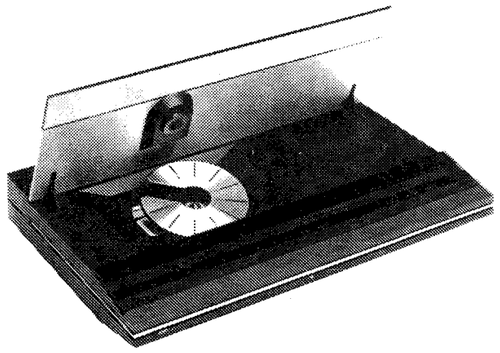


Beogram CDX 2

Type 5161, 5162, 5164

CONTENTS

	PAGE
Decoder PCB 31	10-1
Diagram B (Decoder)	10-2
Diagram C (Control and Display)	10-3
Control and Display PCB 36	10-4
Diagram D (Lid Motor Control, Eject Switch and St.by)	10-5
Wiring Diagram	10-6
List of electrical parts	10-7
List of mechanical parts	10-7
Corrections for Beogram CD 3300	Corrections 1
Control and Display PCB 36 CD 3300	Corrections 2

SERVICE MANUAL

3538701 03-87

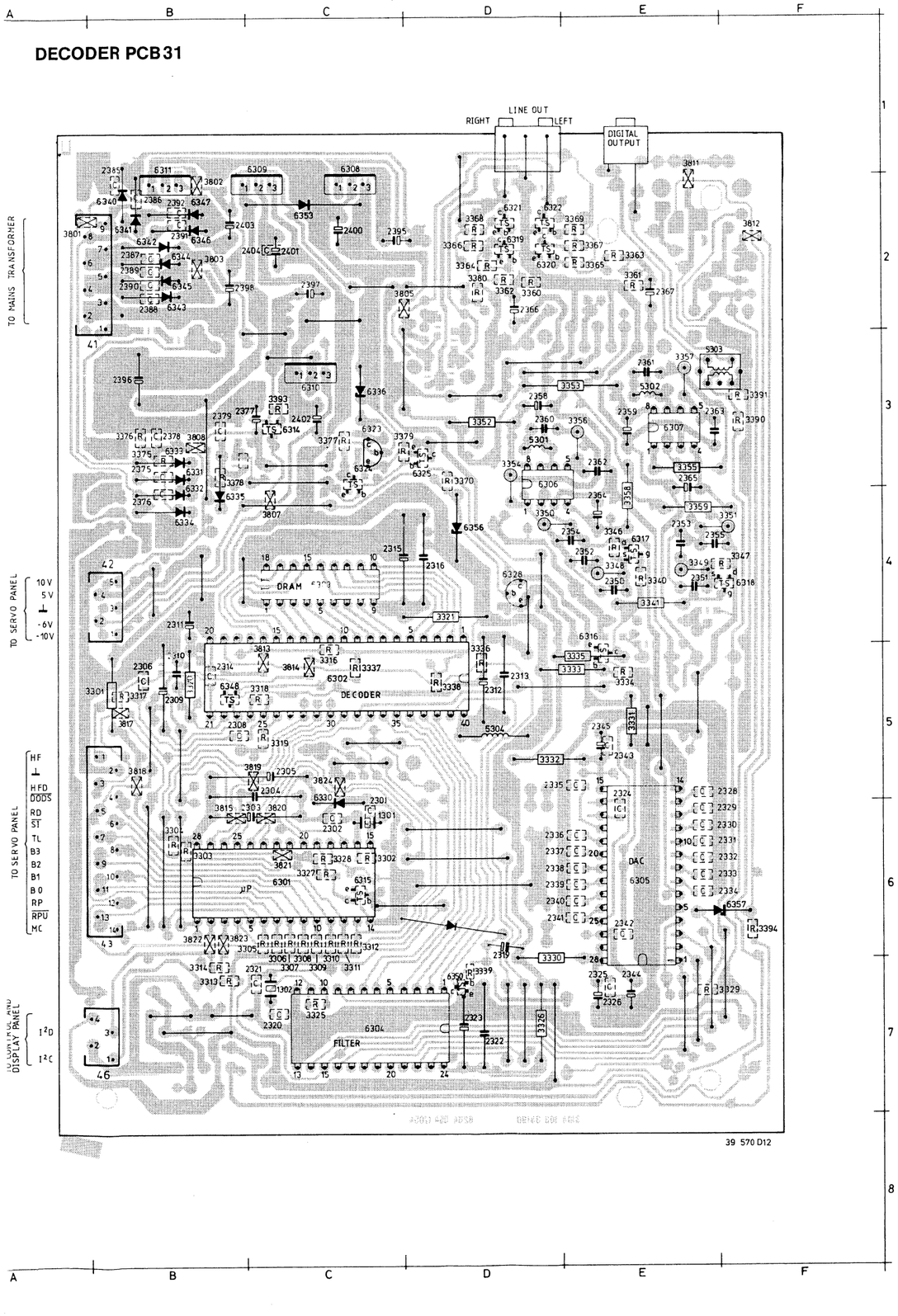
Indklæbes i serviceanvisning til Beogram CD 3300, type 514x
Paste into Service Manual Beogram CD 3300, type 514x
In Serviceanleitung Beogram CD 3300, Typ 514x einkleben
A coller le Manuel d'entretien pour Beogram CD 3300, type 514x

10-1

10-1

Bang & Olufsen

DECODER PCB 31



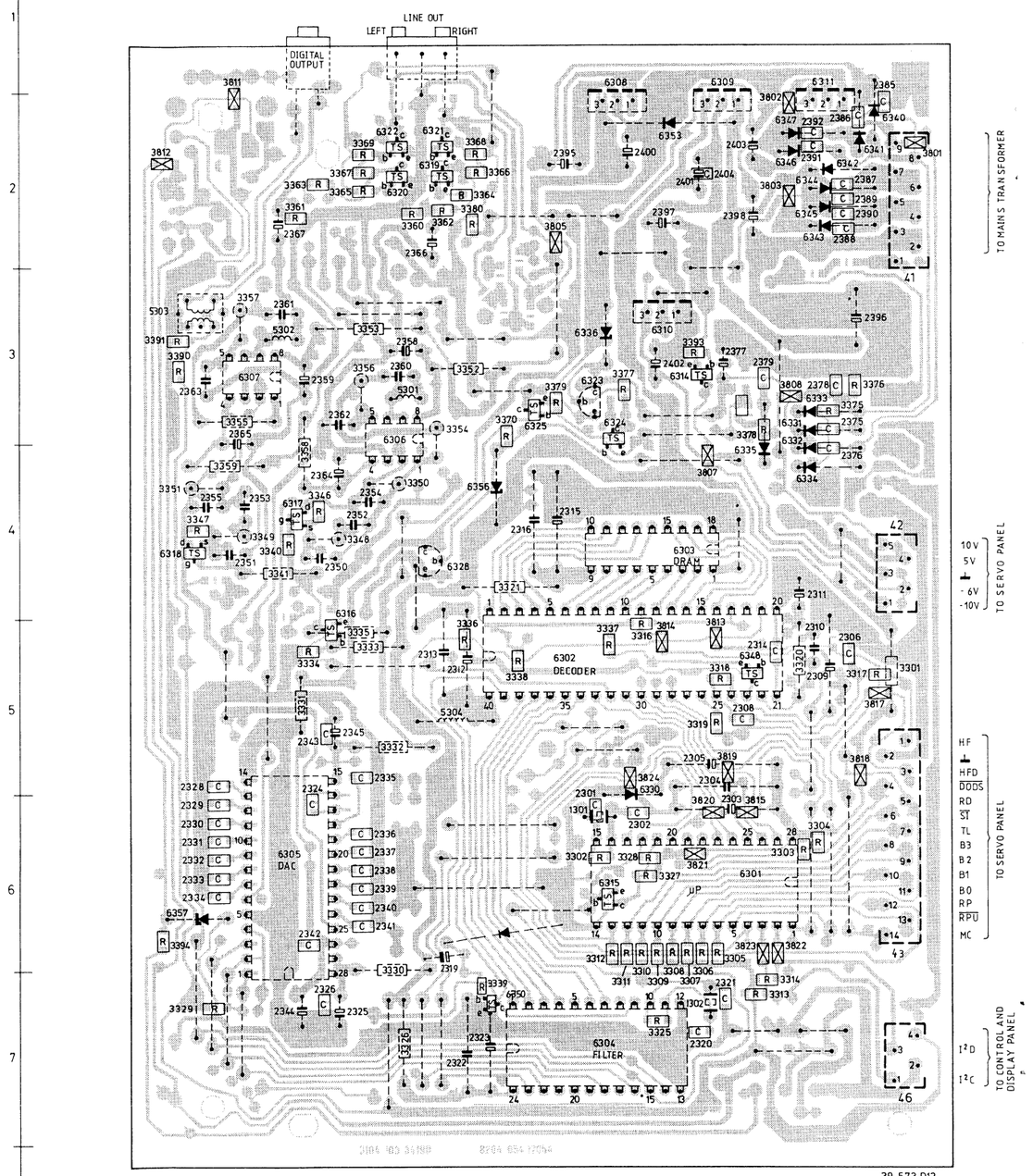


DIAGRAM B (Decoder)

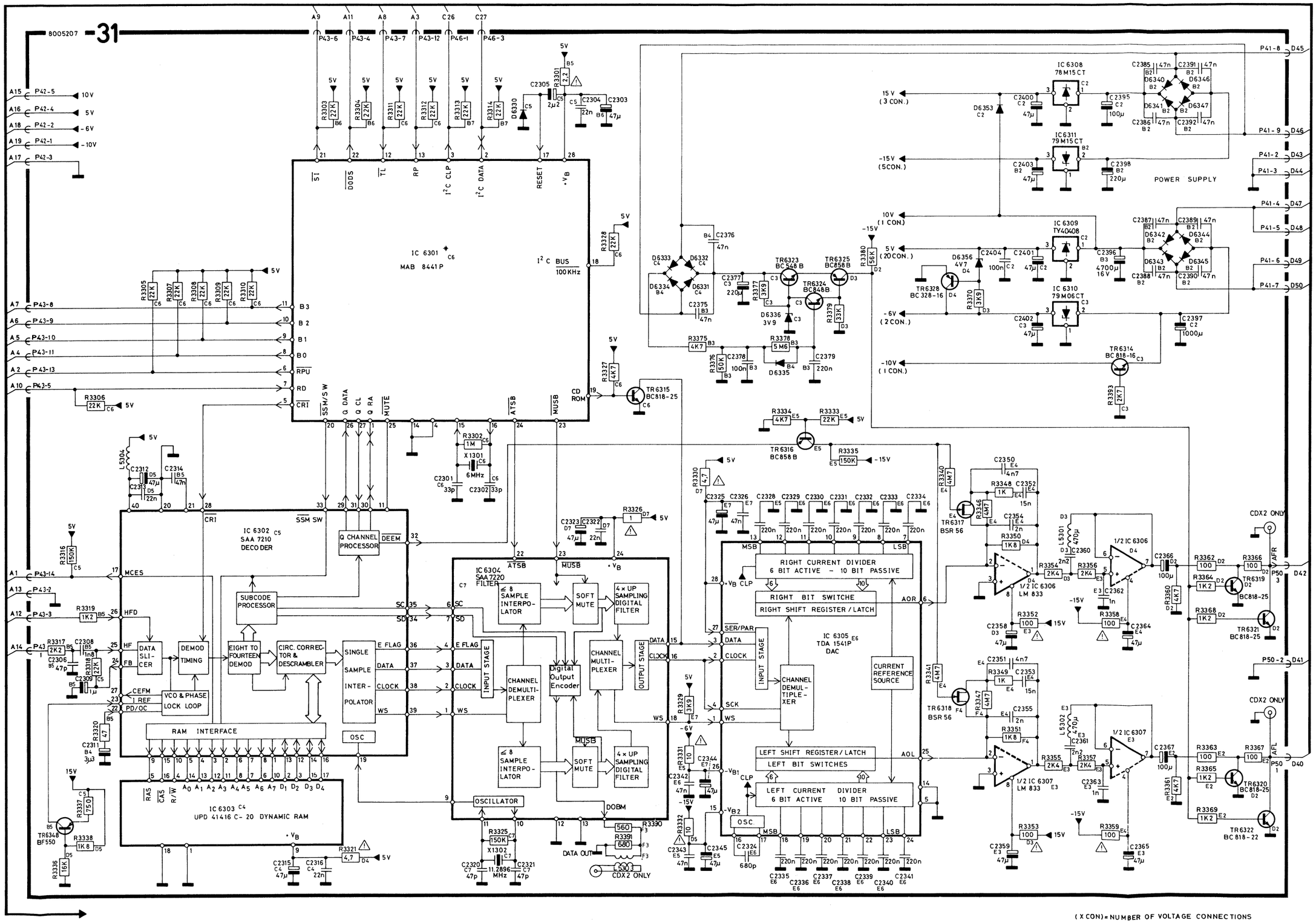
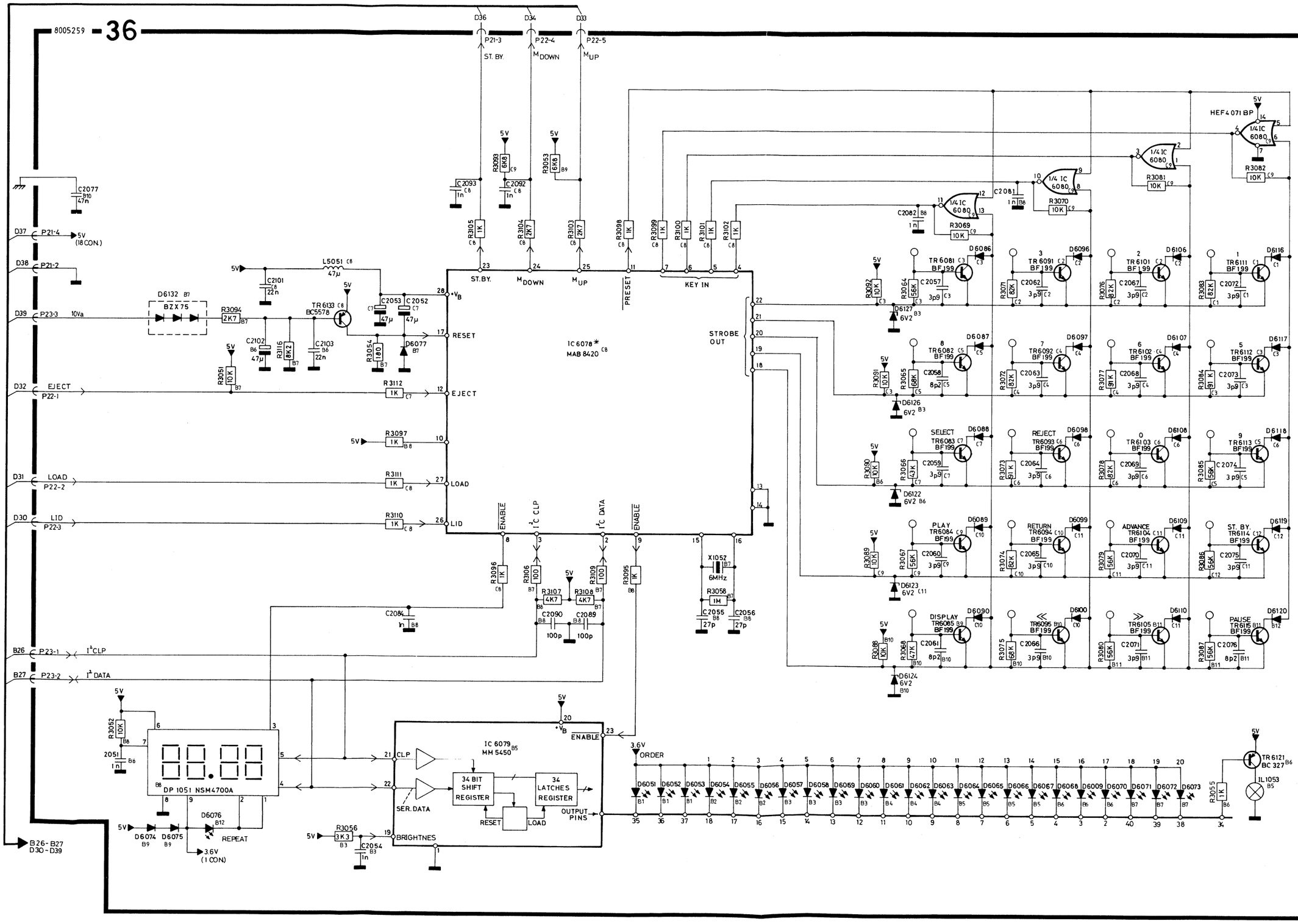


DIAGRAM C (Control and Display)

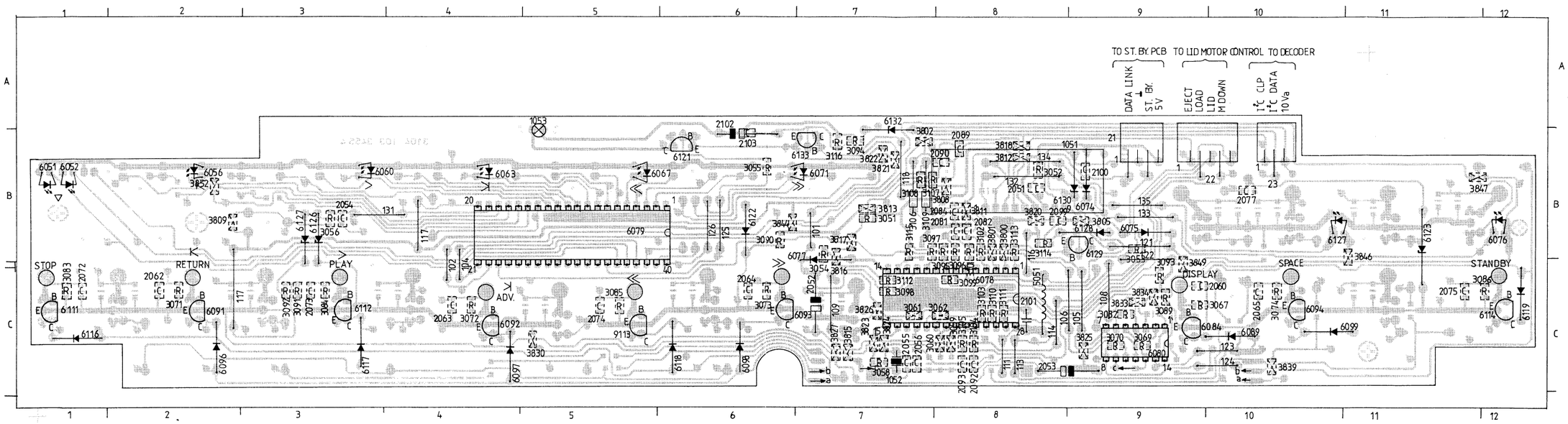


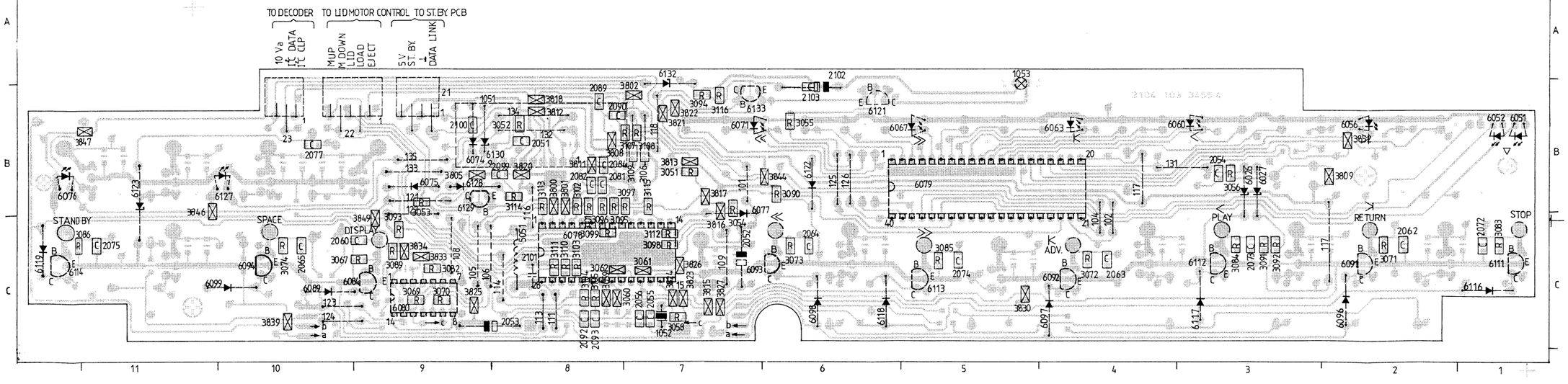
Corrections 2

Corrections 2

Bang & Olufsen

CONTROL AND DISPLAY PCB 36 CD 3300





Bang & Olufsen

Corrections 1

Corrections 1

CORRECTIONS FOR CD 3300

Corrections to page 3-3, PCB31

IC6309 8341029 TY 40408
C2311 4200625 3.3 µ 50V

Corrections to page 3-4, PCB31

C2319 4200380 1 µ 63V

Additions to page 3-5, PCB38

Part number for lid motor control 8005208

Additions to page 3-5, Eject Switch

Part number for eject switch 8005210

Addition to page 4-1

3458648 Top plate for pos. 9612

Corrections to page 4-1

The following parts are no longer available as separate parts:

9602 Focus unit
9605 Rafoc.
9607 Flex PCB
9613-14-15 Disc motor system

The parts mentioned are replaced by the CD mechanism and servo PCB as one unit part no. 8420141

Correction to page 4-2

9014 3454367 Bottom

10-7

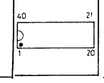
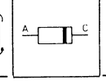
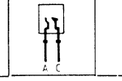
10-7

LIST OF ELECTRICAL PARTS

Resistors SMD 2% 1/8 W
SMD 5% 1/8 W

	5%	2%	2%	2%	2%	2%	5%	5%
	x1	x10	x100	x1K	x10K	x100K	x1M	x10M
1.0	5011623	5011647	5011218	5011227	5011241	5011256	5011267	5011730
1.1	5011624	5011648	5011669	5011681	5011689	5011694	5011707	
1.2	5011625	5011649	5011219	5011682	5011490	5011257	5011708	
1.3	5011626	5011650	5011670	5011683	5011242	5011258	5011709	
1.5	5011627	5011651	5011220	5011228	5011243	5011259	5011710	
1.6	5011628	5011652	5011671	5011684	5011690	5011695	5011711	
1.8	5011629	5011653	5011672	5011229	5011244	5011260	5011712	
2.0	5011630	5011654	5011673	5011685	5011691	5011696	5011713	
2.2	5011216	5011655	5011674	5011230	5011245	5011261	5011714	
2.4	5011634	5011656	5011675	5011686	5011246	5011697	5011715	
2.7	5011635	5011657	5011497	5011231	5011247	5011262	5011716	
3.0	5011731	5011658	5011499	5011500	5011692	5011698	5011717	
3.3	5011217	5011659	5011676	5011232	5011248	5011263	5011718	
3.6	5011636	5011660	5011677	5011687	5011249	5011264	5011719	
3.9	5011637	5011661	5011221	5011233	5011491	5011699	5011720	
4.3	5011638	5011662	5011498	5011688	5011492	5011700	5011721	
4.7	5011639	5011269	5011222	5011234	5011250	5011265	5011722	
5.1	5011640	5011663	5011678	5011235	5011493	5011701	5011723	
5.6	5011641	5011664	5011223	5011236	5011251	5011702	5011724	
6.2	5011642	5011665	5011224	5011237	5011693	5011703	5011725	
6.8	5011643	5011666	5011225	5011238	5011252	5011704	5011726	
7.5	5011644	5011667	5011679	5011239	5011253	5011705	5011727	
8.2	5011645	5011270	5011226	5011240	5011254	5011266	5011728	
9.1	5011646	5011668	5011680	5011489	5011255	5011706	5011729	

(Glue dots, approx. 200, part no. 3181932).

20	42	124	136	209	243		
							

Parts not mentioned are standard

PCB 31, 8005207
Decoder

L5303	8020639	Dig output			
	7210746	Plug audio out			
	7210747	Plug digital out			

PCB 36, 8005259
Control and Display

IC6078△	8341007	**136**	MAB 8441	IC6080△ 8340816	**136** HEF 4071 BP
IC6079△	8340467	**124**	MM 5450		
TR6081-6085	8320281	**042**	BF 199	TR6111-6115 8320281	**042** BF 199
TR6091-6095	8320281	**042**	BF 199	TR6121 8320316	**020** BC 327
TR6101-6105	8320281	**042**	BF 199	TR6133 8320152	**020** BC 557B
D6051-6053	8330233	**243**	LED Red	D6096-6100 8300359	**209** BAW 62
D6054-6073	8330232	**243**	LED Green	D6106-6110 8300359	**209** BAW 62
D6074-6075	8300023	**209**	1N 4002	D6116-6120 8300359	**209** BAW 62
D6076	8330209	**243**	LED Red	D6122-6127 8300201	**209** BZX79B 6V2
D6077	8300359	**209**	BAW 62	D6132 8300355	**209** BZX 75c 2V1
D6086-6090	8300359	**209**	BAW 62		
DP1051	8330146		NSM 4700 A		

R3106	5020177	100 Ω 1% 1/4W		R3109 5020177	100 Ω 1% 1/4W
C2051	4010132	1 nF 5% 50V		C2076 4000322	8.2 pF 10% 50V
C2052-2053	4200364	47 µF -10+50% 10V		C2077 4010192	47 nF 10% 50V
C2054	4010132	1 nF 5% 50V		C2081-2082 4010132	1 nF 5% 50V
C2055-2056	4000278	27 pF 5% 50V		C2084 4010132	1 nF 5% 50V
C2057	4010198	3.9 pF 5% 63V		C2089-2090 4000248	100 pF 5% 50V
C2058	4000322	8.2 pF 10% 50V		C2092-2093 4010132	1 nF 5% 50V
C2059-2060	4010198	3.9 pF 5% 63V		C2101 4010107	22 nF -20+80% 40V
C2061	4000322	8.2 pF 10% 50V		C2102 4200364	47 µF -10+50% 10V
C2062-2075	4010198	3.9 pF 5% 63V		C2103 4000255	22 nF 10% 50V
L5051	6850160	47 µH			
X1052	8090022	6 MHz			
IL1053	8230089	115 mA 5V			

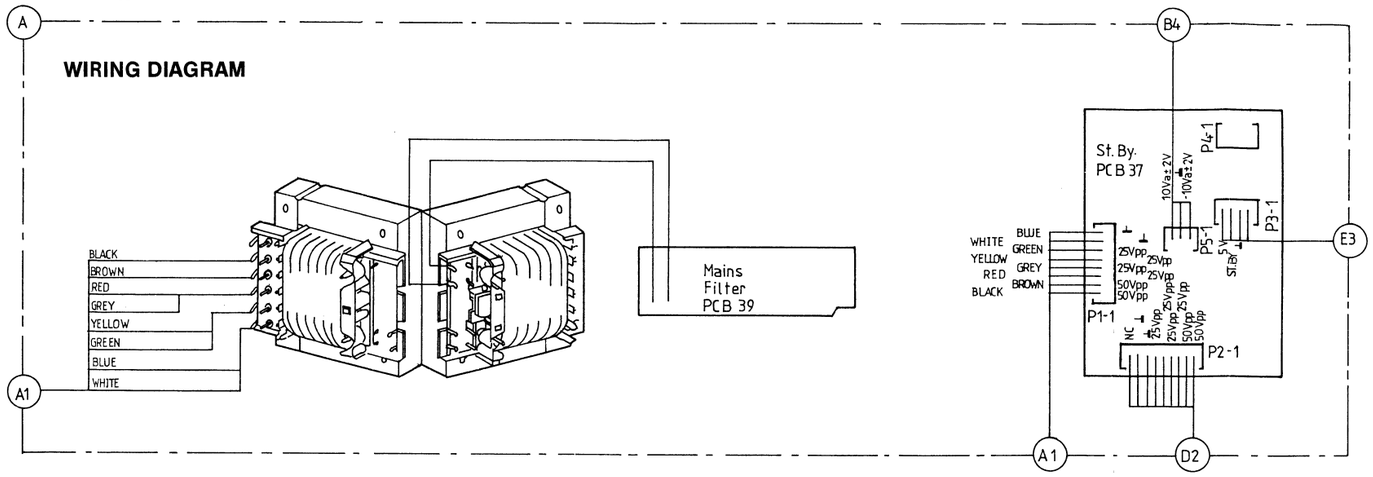
△ indicates that static electricity may destroy the component.

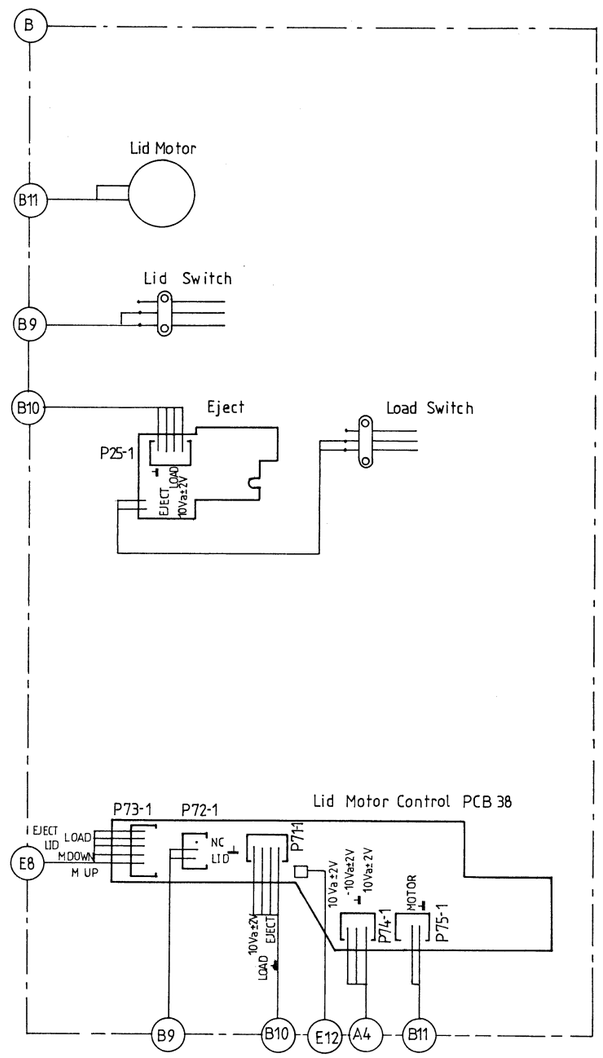
LIST OF MECHANICAL PARTS

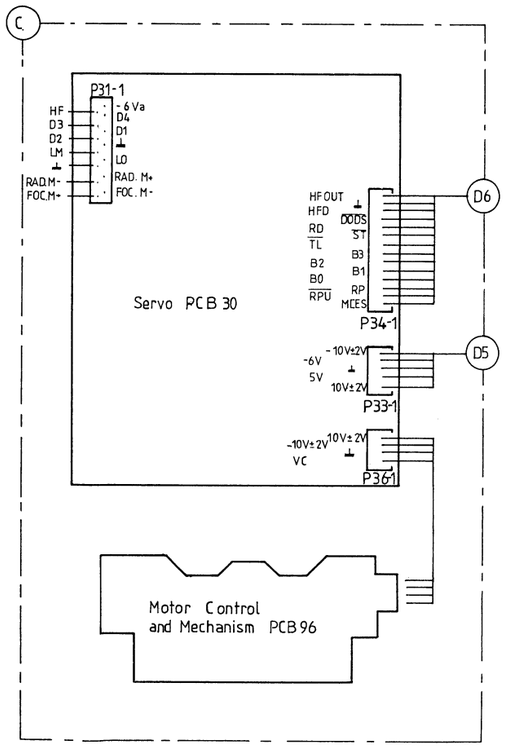
9001	3162305	Dust cover
9002	3430459	Cabinet
9012	2854116	Arm, eject
9013	3430463	Frame

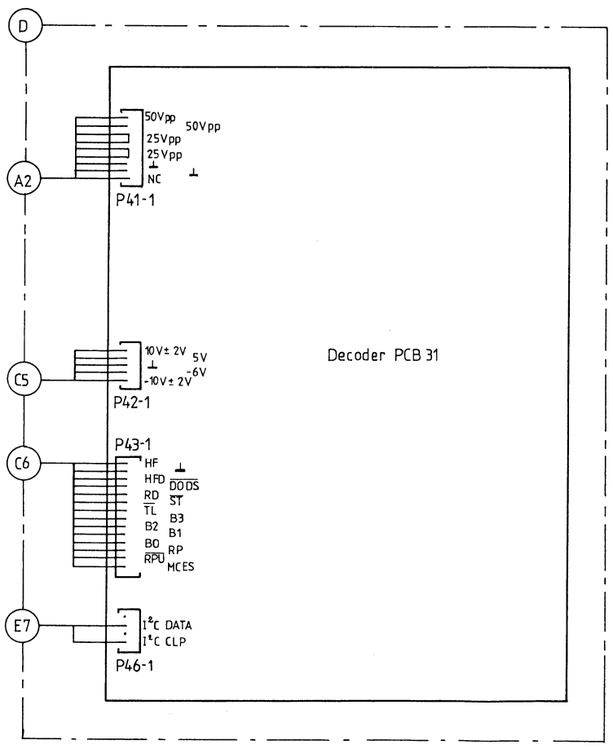
Other parts as Beogram CD 3300

WIRING DIAGRAM









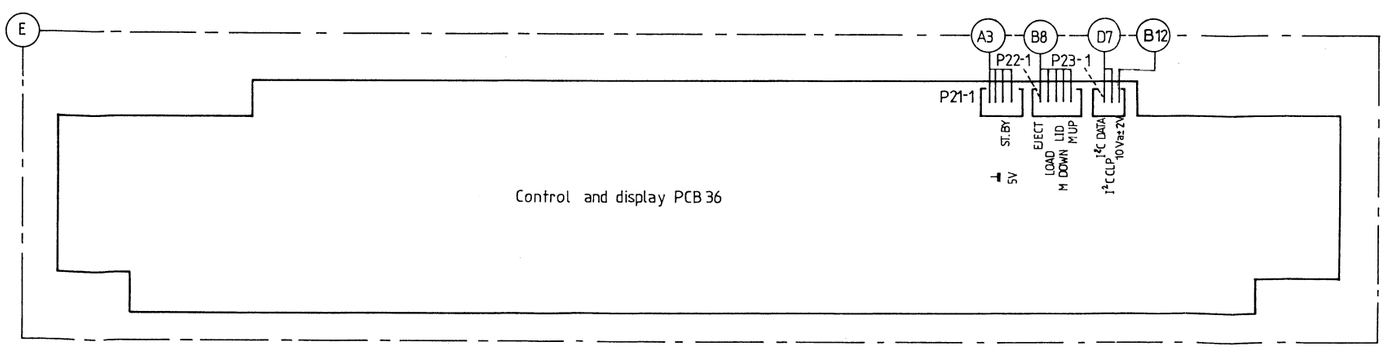
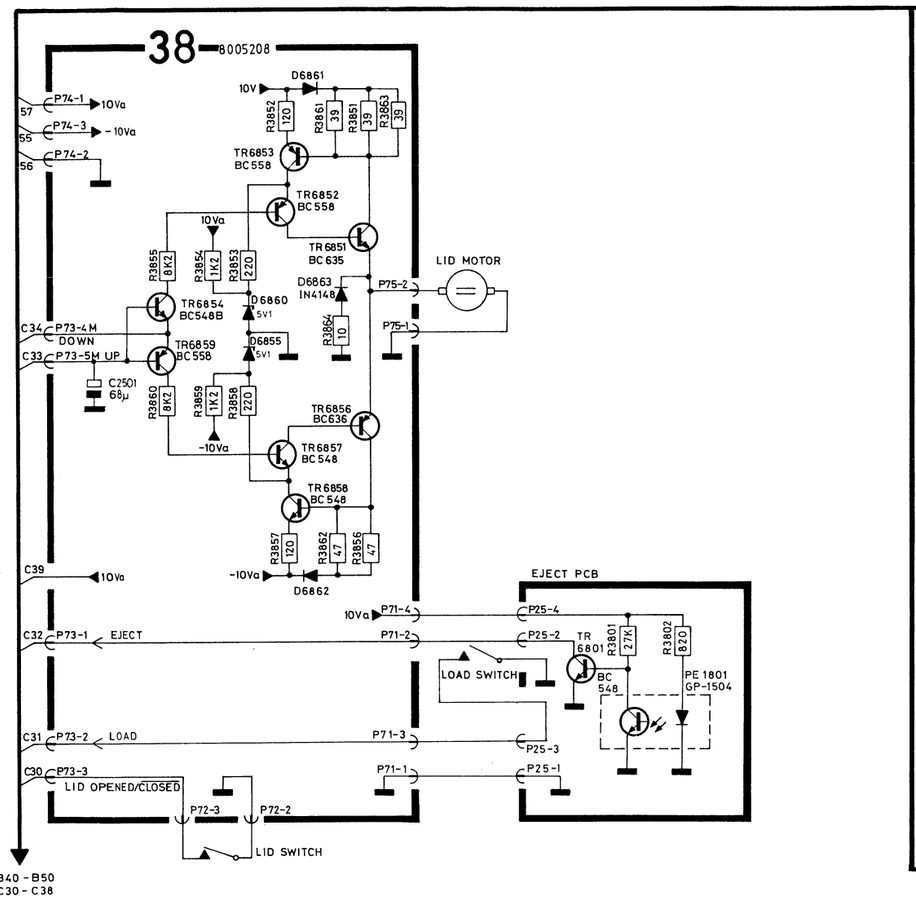
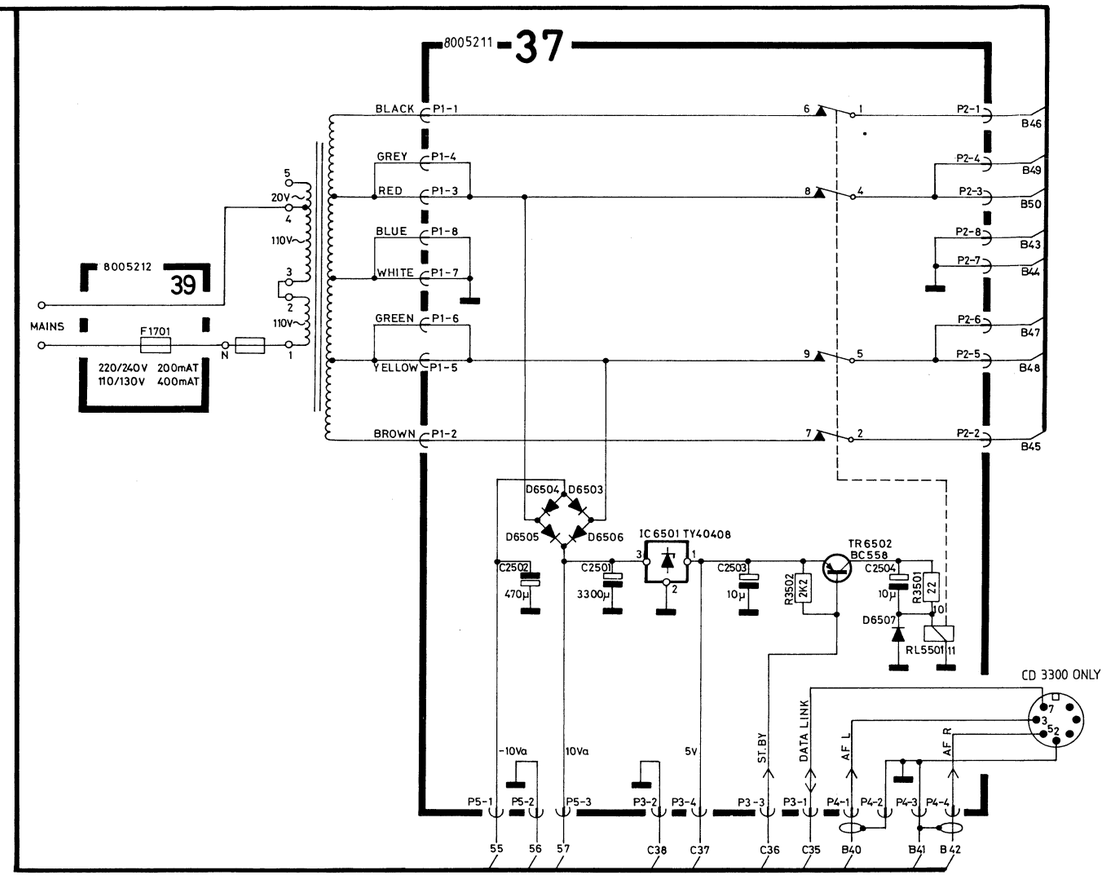
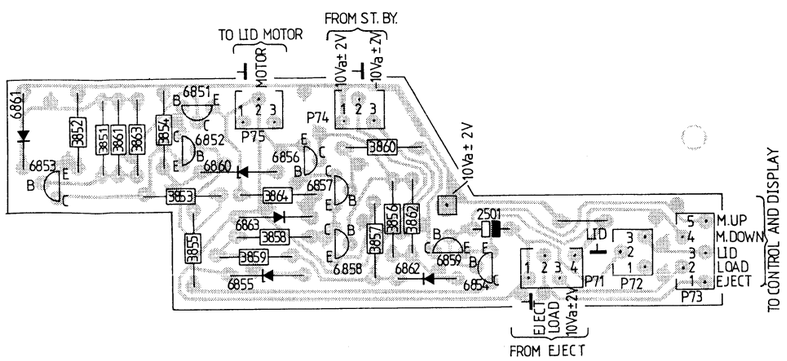


DIAGRAM D (Lid Motor Control, Eject Switch and St. By)

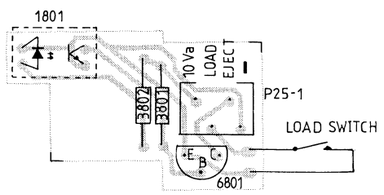




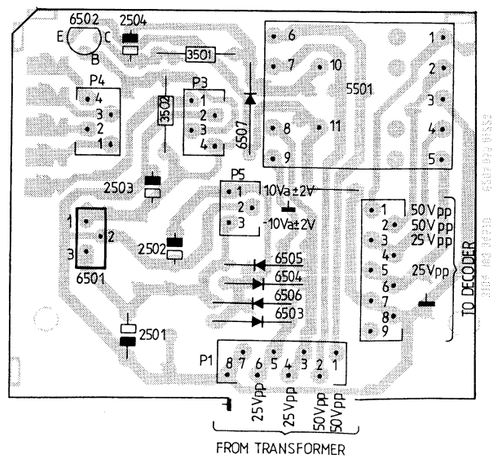
LID MOTOR CONTROL PCB 38



EJECT SWITCH



ST.BY. PCB 37



CONTROL AND DISPLAY, PCB 36